Facultad de Ciencias Humanas y Sociales
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Trabajo Fin de Grado

SCIENCE COMMUNICATION IN THE EUROPEAN UNION

From Horizon 2020 Results to Horizon Europe Implementation

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LIST OF ABBREVIATIONS

Abbreviations	Definitions
4H	Quadruple-helix
COALESCE	Coordinated Opportunities for Advanced Leadership and Engagement for Science Communication in Europe
CONCISE	Communication role on perception and beliefs of EU Citizens about Science
CORDIS	Community Research and Development Information Service
DG RTD	Directorate-General for Research and Innovation
EC	European Commission
ECCSC	European Competence Center for Science Communication
ENJOI	ENgagement and JOurnalism Innovation for Outstanding Open Science Communication
ERA	European Research Area
FP	Framework Programme
GlobalSCAPE	Global Science Communication and Perception
H2020	Horizon 2020
NEWSERA	Citizen Science as the new paradigm for Science Communication
ParCos	Participatory Communication of Science
PUS	Public Understanding of Science
QUEST	QUality and Effectiveness in Science and Technology communication
RRI	Responsible Research and Innovation
Scicomm	Science Communication
SwafS	Science with and for Society
TRESCA	Trustworthy, Reliable and Engaging Scientific Communication Approaches
WIDERA	Widening Participation and Strengthening the European Research Area

Notice on the use of Artificial Intelligence

In the elaboration of this Trabajo Fin de Grado, a limited use has been made of Artificial Intelligence tools, exclusively as a support for instrumental tasks (e.g., style correction, organization of ideas or generation of preliminary proposals). In no case have such tools substituted the research, drafting and personal analysis work that constitutes the basis of the present work.

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Consequently, the present TFG complies with what is established in the General Regulation of the University, which considers plagiarism the use of AI to create complete works or relevant parts thereof without due citation, authorization or acknowledgement.

1. INTRODUCTION: PURPOSE AND MOTIVATION

Scientific knowledge is increasingly relevant in public debates on issues such as health, climate, artificial intelligence and biotechnologies. At the same time, the ways in which scientific knowledge is communicated and interpreted is an important factor in determining the contribution of science to public understanding. Because of this, science communication matters not only as a means of conveying information, but also as a process that influences how expertise, uncertainty and evidence are integrated into policy decision-making.

This intersection between science, communication and public policy is the central motivation of this work. My interest in science communication is closely related to a broader focus on international governance and public policy, combined with a particular interest for scientific and technological issues. Through coursework and research on topics such as bioterrorism, synthetic biology and bioethics, I became increasingly aware that effective policymaking in science-related fields depends on technical knowledge and on how technical and scientific information is communicated and framed within institutional and political contexts. From this perspective, science communication appears as a key, yet often underestimated, component of governance, and as a particularly relevant research area within the study of communication.

The increasing relevance of science communication is linked to the evolution of the environments in which scientific information is transmitted and the ways this information is mediated. In the past, science communication was typically mediated through relatively stable relationships between scientific institutions and professional journalism. However, it now takes place within a more fragmented information ecosystem. Scientific information reaches the public through a broader range of actors and channels, including social media platforms, scientists communicating directly with non-expert audiences, activist groups and online communities (Krause, Freiling & Scheufele, 2025). These transformations have changed how scientific information is disseminated and interpreted, reaching audiences with different levels of trust, expectations and prior knowledge.

Science communication cannot be treated as a purely technical matter. Since it operates in social and political contexts, institutional choices about how scientific knowledge is communicated may have implications for issues of legitimacy, trust in scientific institutions and even policy (Scheufele, 2014). This helps explain why science communication is increasingly seen as an area of institutional responsibility and public intervention, raising

questions of coordination and longer-term capacity. The European Union (EU) represents a particularly relevant case. While science communication looks different across individual European countries, the EU has attempted to position itself as a strong institutional force by promoting shared frameworks and priorities.

The EU's interest in science communication is not recent. Science communication has been supported through a range of initiatives and projects across successive Framework Programmes, reflecting a recognition that the relationship between science and society is not only shaped by research outputs, but also by how scientific knowledge is communicated and interpreted. This interest has been more visible over recent years, both within individual initiatives and within broader policy agendas, such as Open Science, which seeks to promote greater access to knowledge and enhance its societal value (European Commission, 2020a). Within Horizon 2020 (H2020), the Science with and for Society (SwafS) program funded 8 sister science communication projects: ParCos, CONCISE, ENJOI, NEWSERA, RETHINK, GlobalSCAPE, QUEST, and TRESCA. The publication of the *CORDIS Results Pack on Science Communication* in 2024 is highly relevant. Drawing on the specific results of individual projects, this report expands to offer an EU-wide narrative about the challenges of science communication and what types of communication practices and support are considered necessary to address these problems (European Commission, 2024). Therefore, the *Results Pack* uses H2020 outcomes as a launch for the new Horizon Europe initiative: Coordinated Opportunities for Advanced Leadership and Engagement for Science Communication in Europe (COALESCE). This signals a move from project-based outputs towards longer term implementation instruments.

This emphasis on implementation reflects concern over how the outcomes of science communication are sustained over time. Although the results of individual EU-funded research and innovation projects can offer valuable tools, these efforts risk remaining uneven or short-lived once the project funding cycle ends. Recent discussions at the European level have focused on the need to move beyond one-off projects and temporary collaborations towards the creation of long-lasting structures that can provide continuity and coordination in the science communication arena (Ochu, Russo & Smeets, 2022). In this context, the idea of a European competence-center model represents an opportunity to bring together training, resources and standards within a more stable institutional framework. COALESCE is presented as an initiative along these lines: not as a mere continuation of earlier projects, but as a consolidation mechanism that is taking the outcomes of previous research and translating them into a lasting European infrastructure for science communication.

Against this background, the aim of this work is to examine how the EU approaches science communication, focusing on the transition from H2020 to Horizon Europe. Through a thematic analysis of 21 documents, including EU policy-framing texts, H2020 project outputs and Horizon Europe deliverables, the study explores how science communication priorities and results are framed, operationalized and carried forward during this transition. The goal is to shed light on the ways in which science communication research results are consolidated and operationalized in the European context.

2. STATE OF THE ART AND THEORETICAL FRAMEWORK

2.1. Evolution of Science Communication Research

While the practice of communicating science to the public dates back centuries, its formal study as a theoretical and empirical field is quite recent (Bucchi, 2008). The term "science communication" has many definitions, and not all experts agree on its goals and scope. It has often received other names and been used interchangeably with other terminology including "science popularization", "public understanding of science" (PUS), or social appropriation of science (Gascoigne & Schiele, 2020, p. 11).

However, efforts have been made to define the term and to differentiate it from related concepts, which despite points of convergence, carry distinct meanings and approaches. Burns, O'Connor, & Stocklmayer (2003) provided a foundational contemporary definition through their AEIOU vowel analogy, defining science communication as "the use of appropriate skills, media, activities, and dialogue to produce one or more the following personal responses to science: Awareness, Enjoyment, Interest, Opinion and Understanding" (p. 191).

The evolution of the research discourse in the field has been divided in three phases: Science Literacy, Public Understanding of Science (PUS) and Science-in-Society (Bauer, 2009, p. 222). Between the 1960s and the 1980s, the 'literacy' phase understood scientific ignorance as a public knowledge deficit, assuming that support for science comes from an understanding of scientific facts (Bauer, 2009, p. 223). The Royal Society's 1985 report was a key turning point from literacy to PUS, as it framed public ignorance as the problem and placed a "duty to communicate" on scientists (p. 24). By the 1990s, Science-in-Society emerged, moving towards dialogue and participation and identifying a 'trust deficit' rather than a lack of knowledge (Bauer, 2009, pp. 225–226).

It is also useful to explore how the field of science communication consolidated institutionally. Specialized academic journals started appearing in late twentieth century, some of the most relevant being *Public Understanding of Science* (1992) and later on *Science Communication* and the *Journal of Science Communication* (JCOM) (Weingart, Joubert & Connoway, 2021). Global mapping across 39 countries shows that science communication has established itself beyond its Anglo-American origins, pointing to the field's emergence as a "social necessity" (Gascoigne & Schiele, 2020, p. 5). Alongside these institutional developments, the field has also consolidated when it comes to methodology through what has been named 'the science of science communication', an empirical and theory-driven approach that uses the scientific method to define audiences and evaluates messages and their effectiveness (Fischhoff & Scheufele, 2013; Kahan, Scheufele, & Jamieson, 2017).

Today, the science communication landscape is increasingly heterogeneous and fragmented. Digitalization has transformed the public sphere, blurring the lines between science and society due to the emergence of new actors and practices (Kupper, Moreno-Castro, & Fornetti, 2021, p. 3). In addition, science communication now operates in an era of what some call 'post-normal science' and 'post-normal truth', associated with high levels of uncertainty (Druckman, Ellenbogen, Scheufele, & Yanovitzky, 2025, p. 1; Brüggemann et al., 2020). The field faces new challenges, such as the ethical issues that generative-AI raises for science communication, including accountability, privacy and fairness (Feldman, Medvecky, & Riedlinger, 2025, p. 2).

2.2. Policy Perspectives on Science Communication

The evolution of scientific communication outlined in the previous section cannot be separated from the political and institutional context in which scientific knowledge is produced and communicated. As Scheufele (2014) argues, science communication is inherently political (p. 13586). The debates surrounding scientific issues often blur the lines between the science being debated and its political, moral and legal implications.

The intersection between science communication and governance has attracted growing attention from both researchers and policymakers. Science communication and policy have a mutual effect on each other. Intemann (2023) points to empowering decision-makers as one of the primary goals of science communication, where the aim should be to provide accurate and understandable information to enable policy makers, individuals or funding agencies to make grounded decisions regarding science and technology (p. 352).

Science communication becomes especially relevant within governance in relation to evidence-informed policymaking (Gallo, 2017; Szüdi et al., 2023). Unlike the more widely used term 'evidence-based' policymaking, the 'evidence informed' approach nuances that while the analysis of evidence is a necessary step towards making public policy, this evidence is not the sole input in a formal policymaking process (Gallo, 2017, p. 2). When concretely talking about scientific communication with policymakers, the focus is placed on the fact that "policy decisions are informed by scientific evidence, but are not necessarily based on them" (Szüdi et al., 2023, p. 4).

This section situates science communication within this policy landscape by examining two interrelated dimensions. The first concerns the communication models that have shaped the field, moving from a one-way dissemination model to more dialogic and participatory approaches. The second focuses on how communication roles and responsibilities are allocated among key actors, including scientists, policymakers, journalists and the general public.

2.2.1. Communication Models: From Deficit to Dialogue

The dominant narrative in science communication literature explores a shift from a 'deficit model' towards models based on dialogue and public participation. For much of the twentieth century, science communication operated under the deficit model, which assumes a linear, one-way flow of information, where experts possess knowledge that non-scientists lack (Reincke et al., 2020, p. 1; Suldovsky, 2016, p. 415), and public skepticism or indifference toward science is seen as the result of this lack of scientific knowledge. Under this framework, the goal is to simply fill the knowledge gaps by explaining scientific facts to the public (National Academies, 2017, p. 21), holding the underlying assumption that greater scientific literacy will produce more favorable public attitudes and stronger trust in science (Bucchi, 2008, p. 58; Suldovsky, 2016, p. 416).

Even though the 'deficit model' was dominant for much of the 20th century, it has been widely criticized. The National Academies (2017) argue that this flawed model disregards the possibility that audiences may already understand the science but still make choices inconsistent with scientific evidence based on their own goals, needs and values (p. 3). In this sense, the model assumes that facts alone will sway public opinion and eliminate controversy around science topics, disregarding other factors that guide audience perception (Seethaler, Evans, Gere & Rajagopalan, 2019, p. 379).

Alternative models have been proposed to address these limitations of deficit-based

approaches. The growing concern and demand for involvement in science and technology have led to a shift from 'public awareness of science' to 'citizen engagement' and 'dialogue' (Bucchi, 2008, p. 68). The 'dialogue model' emphasizes two-way communication and mutual learning, where cultural and experiential perspectives are considered to have equal importance as scientific facts (Reincke, Bredenoord, & van Mil, 2020, p. 1). Its primary goal is to improve the public's understanding of science while simultaneously helping scientists understand society's concerns, needs and values when it comes to science (Druckman, Ellenbogen, Scheufele, & Yanovitzky, 2025, p. 4).

The participation model takes it a step further by pointing to the need for 'knowledge co-production', recognizing that non-experts are essential to the production of knowledge itself (Bucchi, 2008, p. 68). It maintains that different stakeholders and citizens should help define research priorities and shape the scientific agenda, based on the idea all can contribute, and all have a stake in the outcomes of these discussions (Trench, 2008, p. 131; Bucchi, 2008, p. 69). Druckman et al. (2025) argue that participatory approaches are better suited to address contemporary challenges such as scientific uncertainty or politicized science (p. 1).

This progression, however, is not a smooth linear evolution. Trench (2008) questions the widely accepted narrative that there has been a large-scale shift from deficit to dialogue, arguing that in practice, deficit-oriented approaches persist alongside the now more popular rhetoric of engagement (p. 123). As argued by Davies and Horst (2016), "there was dialogue and participation in the days of PUS, and there continues to be plenty of deficit model inspired communication today" (p. 225). Along these lines, Bucchi (2008) proposes a multi-framework model in which deficit, dialogue and participation coexist and suggests that each model can be useful in different situations (p. 69). The deficit model, despite widespread criticism, continues to be central in the field of science communication as a zero-degree default (Bucchi, 2008, p. 69), as science is often assumed to have epistemic authority (Suldovsky, 2016, p. 420). Nerghes et al. (2022) find that many scientists still personally define science communication as a one-way process of transmission and translation (p. 19). While the deficit-to-dialogue narrative helped consolidate science communication as a coherent academic field, it now risks imposing restrictions on how the field can develop (Davies & Horst, 2016, p. 218).

Scheufele (2014) argues that both the deficit and dialogue model share a key limitation: they do not take into account the context in which science communication operates, presupposing that interactions between science and the different publics take place in a "socio-political vacuum" (p. 13587). In reality, science communication happens in different media landscapes. For policymakers, science communication might be taking place in reports or at

conferences, but for the public it is increasingly taking place on social and other digital media. As Nerghes et al. (2022) point out, the rise of digital platforms and social media has created a new 'ecology' of communication between science and the public (p. 22). New formats, including video and other visual formats, need to be explored to improve the way science is communicated to stakeholders in the current media landscape.

2.2.2. Roles, Responsibilities and Audiences

This transition from top-down dissemination towards more participatory approaches has led to the redefinition of the roles of actors, the responsibilities and duties assigned them, and the conceptualization of the audiences they engage with.

Even though science communication was traditionally thought to be an activity conducted mainly by individual scientists, there has been a growing interest in the role of other actors, including journalists and the media (Horst, Davies & Irwin, 2017, p. 888). At the same time, the role of scientists themselves has become a source of debate. Rather than simply producing knowledge and leaving its communication to others, scientists are being encouraged to increase their communication efforts in order to interact more with the public and to have their views contribute to policymaking (Dudo & Besley, 2016, p. 1). Pielke (2007) provides a useful framework for exploring what this contribution entails in practice, identifying four idealized roles for experts in policy contexts: the Pure Scientist, the Science Arbiter, the Issue Advocate and the Honest Broker of Policy Alternatives. The Honest Broker role is especially significant because it attempts to expand rather than restrict the scope of choices available to decision-makers, integrating scientific evidence into policy without compelling a particular decision (p. 2–3).

Beyond the relationship between scientists and policymakers, the boundaries between scientists and journalists are also shifting. Brüggemann et al. (2020) argue that the traditional roles of scientists and journalists are changing in a time of 'post-normal science', where both scientist and journalist are increasingly acting as "advocates of common goods"[1], and as "brokers of dialogue" (pp. 10-11). Krause, Freiling & Scheufele (2025) also explore the shifting roles of actors in the science communication landscape, maintaining that there has been a move away from institutional mediation towards a more fragmented and direct approach (p. 1). New roles have emerged, such as 'science influencers' and 'celebrity scientists', who use social

[1] Including ecology, democracy or scientific/press freedom (Brüggemann et al., 2020, p. 7).

media platforms like YouTube and X to reach audiences directly, competing with the traditional gatekeeping role of science journalism (Krause, Freiling & Scheufele, 2025, p. 2). Another significant challenge is the "blurring of scientists' personal and professional speech", where scientists' personal opinions and commentary can negatively influence audiences' perception of science and affect the integrity of scientific institutions (Krause, Freiling & Scheufele, 2025, p. 3).

It is important to explore along these roles the responsibilities and duties associated with science communication. While the Bodmer report already established a duty for scientists to speak to the public (The Royal Society, 1985), more recent frameworks argue for "an equal duty to listen" in order to strengthen the relevance of science to society (National Academies, 2017, p. 19). Effective engagement requires connecting to public values, as they play a key role in the interpretation of scientific information (Nisbet & Scheufele, 2009, p. 1774). Reincke, Bredenoord, & van Mil (2020) capture this through three core responsibilities for science communicators: sharing well-received input, listening to and learning from others' input, and investing in relationships (p. 2).

However, these responsibilities only make sense in relation to a clearer picture of who is actually being engaged. The 'general public' is no longer thought to be a single homogeneous entity but rather a collection of segmented audiences with different interests and needs. Burns et al. (2003) categorize this public into six overlapping groups: scientists, mediators, decision-makers, general public, attentive public, and interested public (p. 184). More recently, there has been a growing call to reach the 'disengaged' or underserved audiences (Humm et al., 2020) by addressing both material barriers such as infrastructure or financial resources, and emotional exclusion factors like fear, frustration or habitual distance (p. 169).

For the purpose of this study, situated in the European context, recent empirical work by Losi (2023) is especially significant, as it proposes a modern typology of science publics according to the ways in which individuals engage with science. From the least to the most engaged publics: the 'disengaged' score low on all forms of participation and are generally not in contact with science, the 'aware' are consumers of science media but rarely interact directly with scientists, the 'invested' make use of science to inform themselves and occasionally participate in dialogue or policy-related activities, and finally, the 'proactive' seek to gain

personal knowledge and to have an influence over science production and governance[2] (Losi, 2023, pp. 804–805, p. 810).

2.3. Science Communication in the European Context (EU programs)

The aim of this section is to trace the evolution of EU-funded science communication from Early Framework Programmes (FP) to the current Horizon Europe framework. To do this, it is key to explore how the EU has progressively positioned itself as an intermediary or coordinator of relations between science and society in Europe.

Science communication in Europe is a diverse and fragmented field, which finds itself in a moment of transition (Davies et al., 2021, p. 5; p. 7). There is a need to build a "European science ecosystem that is connected and cooperative in practice" (Ochu, Russo & Smeets, 2022, p. 3), and that is where the EU's role comes in. While differences can be found at the national level, the EU has set out to coordinate the conditions under which science is communicated. This role has been built across successive R&I programs and can be traced through the naming of Framework Programme activities dedicated to science and society relations (Figure 1). Terminology shifted from 'Raising Public Awareness' in the early FP5, focusing on 'the public' as an audience to 'Science with and for Society' in Horizon 2020, in which the focus shifts to 'citizens' and 'stakeholders', showcasing recognition of society as a direct collaborator and beneficiary of scientific efforts (Conceição et al. 2020, p. 12-14).

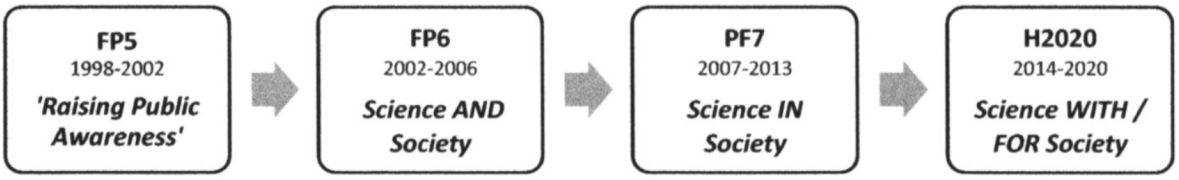

***Figure 1**. European Commission action plans in the science-society domain from FP5 to H2020.*[3]

Science communication became especially relevant during the H2020 period. One of the eight activity lines put forward for H2020's SwafS was "Improved knowledge on science communication" (European Commission, 2020a, p. 11), and the EU also explicitly recognized the relevance of science communication for the broader SwafS program within the 2020 interim

[2] Disengaged (45% of the sample); aware (27% of the sample); invested (18% of the sample); and proactive (10% of the sample) (Losi, 2023, pp. 804–805).
[3] Note. From *European action plans for science-society relations: Changing buzzwords, changing the agenda*, by Conceição et al., 2020, p. 2.

thematic report *Science with and for Society in Horizon 2020: Achievements and Recommendations for Horizon Europe* (European Commission, 2020b). In it, science communication was defined as "presenting science-related topics in a format which is designed for and understandable by the intended audience and remains faithful to the evidence" (European Commission, 2020b, p. 112). More broadly, science communication was perceived as key for achieving the goals of Responsible Research and Innovation (RRI) in the EU, which became fully institutionalized under the H2020 Framework Programme (Simone, 2018, p. 2). This commitment was also reflected in the program's funding scheme, where all research projects were required to include communication and dissemination actions, making Project-Based Science Communication (PBSC) a mandatory component of projects (Arboledas-Lérida, 2025, p. 2).

The most significant concentration of EU investment in science communication research came through the SwafS-19 Research and Innovation Action "Taking Stock and Re-Examining the Role of Science Communication". This call led to the funding of eight sister projects on science communication, representing an investment of almost EUR 10 million (European Commission, 2024, p. 2). Roche et al. (2021) explore the main contributions of these eight projects, pointing out how their overall goal of empowering citizens through more accurate information and more effective knowledge transfer has become even more pressing after the COVID-19 pandemic (p. 3). The projects can be categorized by the specific focus areas they tackled: CONCISE, ENJOI and TRESCA focused mainly on trust in science and its use against misinformation; GlobalSCAPE and QUEST concentrated on providing science communicators with effective tools and ensuring quality; NEWSERA and ParCos explored how to improve participatory engagement and citizen science; and RETHINK examined how science communication should adapt to face an increasingly digital society (European Commission, 2024, p. 2).

The current Horizon Europe program continues the efforts of SwafS-19, both across the program as a whole and through specific activities within Section 11 of the Work Programme: 'Widening participation and strengthening the European Research Area' (WIDERA) (Roche et al., 2021, p. 4). The most direct initiative seeking to consolidate the science communication knowledge generated during H2020 is COALESCE. Its core mission is to build a European Competence Center for Science Communication, striving to consolidate results from the eight SwafS projects by translating them into "tools and best practices to achieve high-quality, evidence-based and interdisciplinary science communication" (European Commission, 2024, p. 22).

2.3.1 Research Gap and Justification

The previous sections have shown that science communication has become a central concern for EU R&I policy, evidenced by the move from an implicit presence across the first Framework Programmes to a more structured approach under H2020 and Horizon Europe. As explored in the state of the art, existing literature on European science communication has focused on topics such as the evolution of science-society action plans (Conceição et al., 2020), the types of science publics within the European context (Losi, 2023), the state of the contemporary European science communication landscape (Davies et al., 2021), or the collective contributions of the SwafS-19 projects (Roche et al., 2021). What remains less examined is how the European Union constructs and consolidates science communication knowledge across Framework Programmes, and concretely in the transition from H2020 to Horizon Europe. The progression from individual SwafS-19 projects to the establishment of a competence center under Horizon Europe shows a consolidation effort on the part of the Commission, which will be the central focus of this study. The question remains whether Horizon Europe's COALESCE is attempting a real translation of H2020 results into lasting infrastructure, or if it is a reframing of existing knowledge and priorities under a new label. The aims and research question set out below are meant to address this gap.

3. RESEARCH GOALS AND QUESTIONS

This thesis pursues two main objectives. The first is to trace how science communication is framed, operationalized and assigned across actors within EU documents and project outputs in both H2020 and Horizon Europe. The second goal is to examine whether and how the priorities, instruments and roles introduced in H2020 are carried forward, reworked or abandoned in the Horizon Europe phase. From these objectives follows the main research question:

> **RQ:** How does the European Union frame and consolidate science communication knowledge in the transition from Horizon 2020 to Horizon Europe?

This main RQ is approached through three specific sub-questions, each corresponding to a different aspect through which the transition can be examined:

- **SQ1. Priorities**: Does the document describe specific science communication priorities? (e.g., trust, misinformation, stakeholder engagement, citizen science, open science)
- **SQ2. Operationalization**: Does the document propose guidelines, instruments, or best practices for specific science communication actions, including specific formats? (e.g. video, policy briefs, etc.)
- **SQ3. Audiences and roles**: Does the document define and allocate communicative roles and responsibilities among key actors? (e.g. scientists, intermediaries, citizens, policymakers)

These sub-questions are applied to each document in the corpus, allowing the main research question to be answered through three complementary dimensions and setting the stage for cross-block comparison in the discussion.

4. METHODOLOGY

This study employs a qualitative research design to examine how science communication priorities are constructed, maintained and operationalized in the transition from H2020 to Horizon Europe. The analysis focuses on framing, consolidation and implementation, rather than on evaluating the effectiveness of the projects and initiatives per se.

The study employs thematic analysis (TA) as the main analytical method. TA, as developed by Braun and Clarke (2006), is a method for identifying, analyzing and reporting patterns (themes) across a dataset. The authors propose a six-phase guide including familiarization, initial code generation, searching for, reviewing and defining themes, and lastly producing the report.

TA is an appropriate method for this study for several reasons. First, the corpus analyzed is entirely composed of institutional and project-based outputs: policy reports, call texts, guidelines, deliverables and web content. These documents are produced by institutions with specific goals and targeted at specific audiences, making them strategic communication products. In them, meaning is constructed through recurring framings, vocabularies and priorities. TA allows these patterns to be identified without imposing predetermined codes. In addition, the research questions that guide this study are of a qualitative nature. The aim is

not to count how many times terms such as ‘trust’ or ‘citizen science’ appear across the corpus, but rather to understand how science communication priorities are constructed and maintained in the transition from H2020 to Horizon Europe. In addition, TA is already established as a method in science communication research: Parejo-Cuéllar et al. (2024) applied TA to map thematic patterns across large bodies of science communication literature, while Donois et al. (2025) used it to analyze how scientists and their work are represented in media coverage of contested science topics.

The application of TA is guided by the three sub-questions introduced in Section 3. For each source, the analysis explores whether and how it addresses three distinct dimensions: (1) science communication priorities and their framing, (2) guidelines, instruments or best practices, (3) the allocation and definition of communicative roles and audiences. Each document is first assigned a dominant thematic focus based on which sub-questions are primarily addressed. This initial exploration of individual sources makes it possible to then carry out a cross-document comparison across three separate analytical blocks: EU policy framing documents (Block A), H2020 SwafS-19 Sister Projects outputs (Block B) and Horizon Europe/COALESCE documents (Block C).

Block A (4 sources) includes documents authored by the EU, concretely the EC’s Directorate–General for Research and Innovation (DG RTD), that frame science communication at the institutional level during H2020 and Horizon Europe. The corpus covers the original H2020 SwafS-19 call for proposals (European Commission, 2025)[4], the Commission’s interim report assessing the H2020 communication portfolio and formulating recommendations (European Commission, 2020a), the Horizon Europe call for a European competence center (European Commission, 2022), and the *CORDIS Results Pack on science communication*[5] (European Commission, 2024). Together, these documents trace how the Commission constructs the narrative from knowledge-creation in H2020 to consolidation in Horizon Europe.

Block B (9 sources) includes outputs from the eight SwafS-19 sister projects: CONCISE, ENJOI, GlobalSCAPE, NEWSERA, ParCos, QUEST, RETHINK and TRESCA. Projects are referred to throughout the study by acronym, but the full titles can be found both in the List of Abbreviations and in Appendix A. The selected sources include policy briefs, frameworks,

[4] The call for proposals was first published in 2017, and last updated in 2025 on the CORDIS webpage, hence the 2025 citation year.
[5] The Results Pack is a collaboration between CORDIS, the European Research Executive Agency and DG RTD (European Commission, 2024, p. 23).

guidelines and toolkits. These represent the key findings from H2020 and are necessary to trace how knowledge and results are translated into Horizon Europe.

Finally, Block C (8 sources) focuses on COALESCE as the main science communication project funded under Horizon Europe and is organized around three types of sources: policy briefs, public deliverables and web content from the European Competence Center for Science Communication. These documents show how COALESCE takes results from previous projects and translates them into lasting infrastructure, and where/if it introduces new priorities or instruments not yet present in the H2020 phase.

The initial pool of candidate sources to analyze included 33 documents across the three blocks. Following a filtering process based on relevance to the main research question and sub-questions, the corpus was reduced to 21 documents to include in this report. This filtering was necessary to keep the analysis manageable and to preserve balance across blocks. For Blocks B and C, an effort was made to include both documents exploring project results in depth, as well as some of the instruments created by these projects. Both provide complementary insights for answering the main research question and the sub-questions. Sources addressing more than one sub-question were prioritized.

4.1 Use of AI: Concrete Tools and Purposes

In line with the notice included at the beginning of this work, the following section specifies which AI tools have been used during the elaboration of the TFG. Artificial intelligence has been used in this TFG as a support for a series of tasks and has not substituted the personal work of the author or generated final content. These specific tools have been employed for the following purposes:

- Consensus/Perplexity: used in the initial phases of the process for research and discovery of sources, i.e. to find academic references and obtain a first overview of the state of the art before deciding which articles to read directly in detail.
- Notebook LM: used to clarify concepts and extract specific information from documents, always contrasting results with the original source material.
- ChatGPT/Claude: used to keep track of the literature review (organization of my reading and notes), to suggest related subjects to explore, to explain technical concepts, to assist with the management of citations under APA guidelines, to build checklists of pending tasks, to ensure style correction and to compare drafts against the requirements in the TFG regulatory document.

- Claude (additional use): specifically employed for visual and formatting purposes of the supporting materials used throughout my research (but not for direct formatting of the TFG document itself), e. g.: used to format the blank template in Appendix B and Table 1 in the Discussion section. All content within them remains the author's own.

5. ANALYSIS AND DISCUSSION

The analysis will explore each block separately and within them approach the three dimensions put forward by the sub-questions: priorities, operationalization through instrument proposal and creation, and definition of audiences and roles. This analysis is followed by a cross-block discussion, in which patterns are identified across blocks and the main research question is directly addressed.

5.1. Block A: EU Policy Framing of Science Communication

Before analyzing concrete project outputs, it is key to examine how science communication is initially framed within the EU. To do this, Block A explores the institutional EU-documents that state what science communication should focus on in terms of priorities, expected instruments and targeted actors.

Priorities

Across the four documents, the EC frames science communication around several recurring priorities. Building trust in science is the main concern and is presented as a product of a science communication based on transparency, quality and accuracy (European Commission 2022; 2025). Closely related to trust, another key priority is that of ensuring the quality and reliability of science communication, explained in the corpus through the diagnosis of two developments: "dwindling resources in science journalism" and the rapid diffusion of scientific information which can reach large audiences "without the editorial oversight and fact-checking established in traditional media" (European Commission, 2020a, p.16; 2024, p.2). In this context, science communication is proposed as tool that can help fight mis/disinformation and respond to the new information ecosystem, which appears as the third key priority. Citizen engagement and empowerment is the overarching priority in this block

and related to the three main priorities identified. Finally, professional training and capacity building is approached as a mentioned but less explored priority.

It is also worth noting that a new priority emerges in the more recent documents (European Commission, 2022; 2024), which was not yet present in the H2020 project call or in the Commission's interim report: using science communication for crisis preparedness (European Commission, 2022). The Horizon Europe call for proposals underscores how science communication is essential "to ensure greater ability in the future to react rapidly and effectively to critical situations" (European Commission, 2022), a priority mainly added as a result of the COVID-19 pandemic. There is also a clear consolidation aspect to the Horizon Europe call, which explicitly states that project results and activities must be sustainable "beyond the lifetime of funding" (European Commission, 2022).

Operationalization

The most relevant aspect of this section is what instruments the EC calls for before the implementation of the specific projects. The concrete tools that came from these calls will be explored later on in Blocks B and C and compared to the findings in this block on which specific tools the EC requested.

In general, the call for proposals for Horizon 2020 is not very specific when it comes to the tools to deliver. Goals and priorities are set, but projects have freedom when it comes to the format in which results will be delivered. Concretely, the call focuses on the need to develop new ways to measure and assess science communication, and to identify good practices to increase the accuracy and, with it, the trust in, science communication (European Commission, 2025). In the 2020 interim report, the EC calls for a new topic to complement the findings of the SwafS-19 projects that should concentrate on "awareness raising, synthesizing findings and good practice, sharing tools, and networking efforts in the spirit of a Coordination and Support Action"[6] (European Commission, 2020a, p. 20). It also envisages new actions to introduce pilot training on science communication.

These initial instrument ideas become more precise in the Horizon Europe call, which clearly states what the specific result of the project needs to be, that is the creation of the European Competence Center for Science Communication (European Commission, 2022). This call also explicitly asks for deliverables, among them "policy reports and

[6] A Coordination and Support Actions (CAS) is a type of action under the H2020 Programme that funds projects consisting of 'accompanying measures or 'complementary activities' such as dissemination, networking, policy dialogue or mutual learning exercises (European Commission, n.d.).

recommendations, guidelines and innovative strategies", as well as "the publication of one or more user-friendly handbook(s) for effective science communication" and the creation of an "interactive and pedagogical online toolkit".

Audiences and Roles

Block A names a recurring set of actors but does not specifically name their roles. The EC highlights that "it would be useful to identify the targets for science communication, whether this is citizens in general or all quadruple-helix (4H) stakeholders" (European Commission, 2020a, p. 20). The initial Horizon 2020 call states that science communication is a discipline conducted by "scientists and other R&I stakeholders", and "a career path followed by journalists" (European Commission, 2025). In the Horizon Europe call stakeholders are somewhat more clearly defined, mentioning that instruments should be targeted at "all research and innovation actor types" including government agencies and public authorities, research funding and performing organizations and civil society organizations (European Commission, 2022).

In general, citizens are framed as central but sometimes not sufficiently equipped to evaluate scientific information and engage with it. 'Empowering citizens' to engage with other science communication actors such as public authorities, communicators and scientists becomes key to ensure dialogue between science communication stakeholders (European Commission, 2024, p. 2).

Block A gives us a sense of what the institutional approach of the EU is towards science communication and what is highlighted as most relevant. Read together, the corpus documents trace the different phases in the Commission's science communication knowledge-creation, from asking the field to build a knowledge base, to assessing the outputs and mandating their consolidation. By linking the H2020 outputs with the Horizon Europe project, the transition is framed as a direct continuation. The analysis of the documents produced by the projects themselves in Block B and Block C will help provide useful insights into the concrete aspects of this transition.

5.2. Block B: Horizon 2020's Project Portfolio

The nine documents analyzed in Block B provide an overview of the main themes explored in the eight SwafS-19 science communication projects. While each specific project focused on

concrete aspects of science communication, the analysis reveals recurring themes or patterns found across most projects regarding what priorities are identified, what tools are delivered and what actors and roles are defined.

Priorities

Across the nine Block B sources, the three priorities recognized in Block A dominate: building trust, ensuring and assessing quality and countering mis/disinformation. However, this block gives much more concrete answers to what the current landscape is and gives tools to improve it.

Trust and credibility are the most recurring theme, appearing in seven of the nine documents. Trust is framed as directly related to other key concepts, among them transparency, openness, rigor, independence, integrity and honesty (Moreno et al., 2020, p. 8; Catanzaro et al., 2022, p. 10; Olesk et al., 2021, p. 7). Quality also has a central role, with QUEST (QUality and Effectiveness in Science and Technology communication) being the project most devoted to ensuring and measuring the quality of science communication. Finally, misinformation is identified as a priority and challenge, but the projects go beyond identification and into action. In TRESCA, focus was placed on mis/disinformation related to current scientific issues and to digitalization (Szüdi et al., 2022, p. 3), leading to the creation of a concrete misinformation widget (Ms. W) (p. 4).

The need for training and capacity building is also present as a priority in most projects (Moreno et al., 2020, p.14; Catanzaro et al., 2022, p.5; Szüdi et al., 2022, p. 5; Taylor & Roche, 2023, p. 11; Magalhães et al., 2023a, p. 4) but not yet operationalized or approached in depth. Recommendations are made to improve training of science communicators, but specific and sustainable training instruments are not yet named or created.

Finally, the projects point to other priorities that are less visible in Block A, namely fostering inclusion, diversity and global perspectives (Taylor & Roche, 2023), and increasing the incentives for professionals to engage in science communication (Magalhães et al., 2023a, p. 11).

Operationalization

Block B is rich on information regarding operationalization and instrument development. It is worth noting that many of the corpus documents are themselves instruments and framed as such. Some have a clearer role as direct tools than others, but overall, there is a clear focus on the creation of concrete instruments to be employed in the field of science communication.

Specific instruments that are highlighted as useful for the field include frameworks and indicators, policy briefs, guides, checklists, or blueprints, among others. Some of the concrete tools generated by the projects and explored as key corpus sources include:

- ENJOI's *Manifesto for an Outstanding Open Science Communication*, which includes concrete principles, standards and indicators (SPIS) for science communication (Catanzaro et al., 2022, pp. 18–21).
- NEWSERA's *Guide of science communication in citizen science projects and citizen science journalism,* which includes indicators for impact assessment of communication strategies used in citizen science (Magalhães et al., 2023b, p. 10) and highlights bad practices to avoid and good practices to adopt in a checklist format (pp. 13-14). This tool is framed as "a must-have resource for those who are starting" in the science communication field (Magalhães et al., 2023a, p. 6).
- ParCos' Bristol Framework, which proposes a 6-step framework for issue and people-led science (Evans et al., 2023).
- QUEST's toolkits, among them the *12 Quality Indicators for Science Communicators* which can be seen in Figure 2 (Olesk et al., 2021, p. 3).

Overall, these tools propose best practices or solutions related to the dominant priorities in H2020.

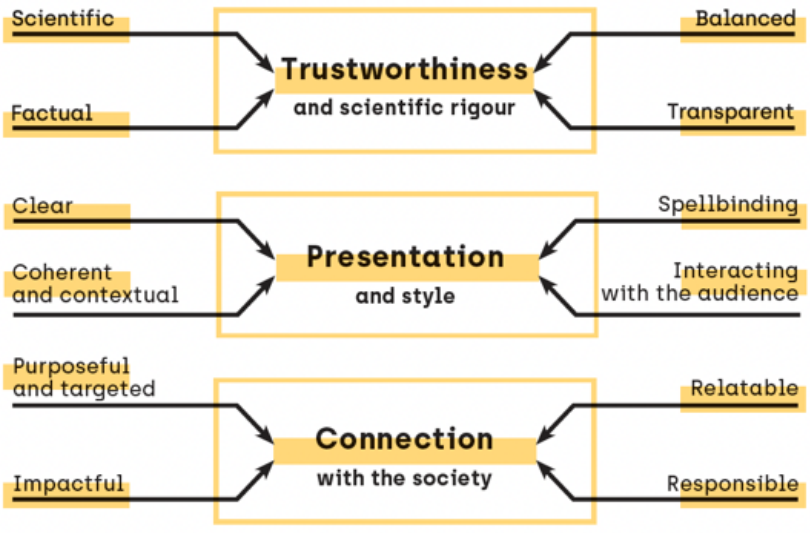

***Figure 2**. 12 Quality Indicators for Science Communication developed by the QUEST project.*[7]

[7] *Note.* From *12 quality indicators for science communication: Guide for science communicators* (QUEST project), by Olesk et al., 2021, p. 3.

The projects also recommend concrete formats, specifically the use of visual and media formats to make scientific content more 'digestible' (Szüdi et al., 2022, p. 3), which should complement rather than substitute traditional science communication methods (p. 6). The visual and digital formats mentioned more often are videos and infographics (Moreno et al, 2020, p.12; Szüdi et al, 2022, p. 6).

Some projects go beyond tool creation and make recommendations for instruments or infrastructure needed in the future. GlobalSCAPE makes an interesting contribution by identifying the need for infrastructure to facilitate the sharing of tools and knowledge. The project specifically calls for the creation of local, national and international hubs to act as 'knowledge brokers' and offer mentorship programs and trainings (Taylor & Roche, 2023, p.11).

Audiences and Roles

The documents identify a complex and fragmented ecosystem, where a variety of actors interact, noting that there is no such thing as the 'general public anymore' and that messages need to be targeted to specific audiences (Catanzaro et al., 2022, p. 21).

NEWSERA argues that science communication should involve 4H stakeholders: citizens and society at large, academic scientists, public sector and policymakers, and industry and SMEs (Magalhães et al., 2023b, p. 14), and also explores the concrete roles played by science and data journalists (p. 24). The RETHINK project puts forward the most precise typology of roles most played by science communicators, categorizing them as conduits, convenors, civic educators and watchdogs (Hyldgård & Langkjær, 2021, p. 9). Finally, CONCISE makes a valuable contribution by bringing to the table citizen perspectives on the roles and responsibilities science communicators should have. According to society, the role of science communicators should be "to keep information channels open and to facilitate a more fluid dialogue between science and society" and playing "mediating role" with the public (Moreno et al., 2020, p. 6) The 'personal responsibility' of communicators in the dissemination of science-related news is also often mentioned (p. 6). This is an interesting example of how knowledge is built through two-way communication, where citizens' perspectives of communicators' roles shape the roles themselves.

Block B provided helpful information for the understanding of science communication knowledge-creation in the EU during H2020. Now, Block C will explore how this knowledge is consolidated and expanded in Horizon Europe, mainly through the COALESCE project.

5.3. Block C: Horizon Europe/ COALESCE

This final block offers an in-depth analysis of the main Horizon Europe science communication project: COALESCE. While Block B examined the knowledge and tools produced during H2020, Block C turns to the Horizon Europe phase and the overarching consolidation objective. This aim is reflected even in the project's name: to coalesce means to come together into a single whole. The analysis of the eight COALESCE sources explores the degree of continuity compared to previous H2020 initiatives regarding priorities, instruments and actors, and more importantly how all of these are translated into a more permanent European infrastructure for science communication.

Priorities

When it comes to priorities, Block C addresses three main themes: trust, quality and misinformation; crisis preparedness and uncertainty; and training and professionalization. These priorities are underpinned by the more general goal of increasing citizen engagement in science and co-creation.

To begin with, trust, quality and misinformation remain dominant priorities, but they are slightly reframed. Concretely, trust moves from the quality/credibility problem to being framed as a dynamic relational concept, that should be developed to counter misinformation in an era of "post-truth" (Moreno-Castro et al., 2025; Roedema et al., 2025, p. 7). The fostering of this 'relational trust' is based on a larger understanding of conflicting values, emotions and societal contexts. There is also a call to shift from "reactive fact-checking to proactive trust-building" in order to effectively navigate misinformation. (Roedema et al., 2025, p. 8).

New priorities also emerge compared to Horizon 2020. A lot of attention is paid to crisis preparedness and uncertainty, and training and professionalization. While these priorities were mentioned in Block B, they now become dominant. The documents employ crisis-related vocabulary, using terms such as "constant polycrisis", mainly related to climate change, health or AI (Magalhães, & Mendoza, 2025, p. 3), or "wicked problems", referring to complex societal challenges that have no straightforward solution (Roedema et al., 2025, p. 4). COALESCE points to the necessity of being proactive during the pre-crisis stage and takes on the task of creating specific tools that can help navigate crisis situations (Moreno-Castro et al., 2025, p. 42; Willems et al., 2026). The documents call for uncertainty to be framed in public messaging as a natural part of science, rather than as a flaw (Roedema et al., 2025, p. 11), while still

recognizing that managing this uncertainty represents a difficult "balancing act" (Moreno-Castro et al., 2025, p. 13) to ensure both transparency and credibility.

Training and professionalization are also perceived as a key priority in the field of science communication in this phase. COALESCE adds to this priority already highlighted in Block B by exploring the specific skill gaps and preferred formats for training per stakeholder to develop effective training opportunities through a Science Communication Academy (Mannino et al., 2024).

The corpus also points to project-specific priorities meant to be achieved by COALESCE, the main one being the establishment of the European Competence Center for Science Communication (Magalhães, & Mendoza, 2025, p. 2). The Competence Center is being developed through the conceptual framework of the Scicomm Innovation Cycle (Figure 3), representing an iterative process in which science communication initiatives move through the stages of "needs assessments, knowledge consolidation, co-development, co-creation and participation with relevant actors, and sustainability and long-term impact" (European Competence Centre for Science Communication [ECCSC], About Section, n.d., para. 6). This is the model through which COALESCE proposes to translate earlier project knowledge into lasting infrastructure.

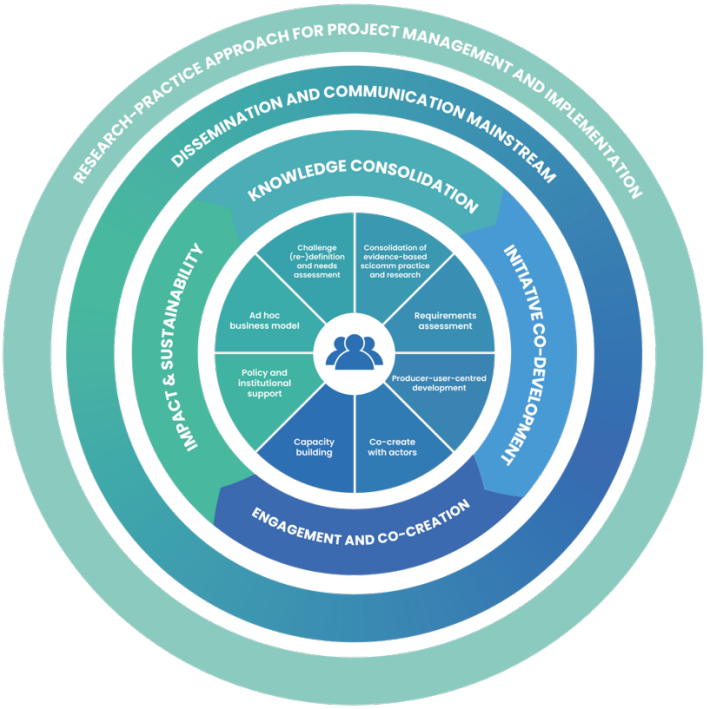

Figure 3. *Scicomm Innovation Cycle developed by COALESCE.*[8]

[8] *Note*. From *scicommcentre.eu* (About the Competence Center section; Conceptual framework), by European Centre for Science Communication, n.d.

Operationalization

When talking about operationalization, all eight documents either propose instruments or are instruments themselves, as was the case in Block B. In general, the tools favored in Block C include toolkits, guidelines, policy briefs, quality frameworks, and training programs.

The Competence Center is the platform where all instruments come together, and it organizes its services through different pillars. It is currently in the process of creating a live 'Scicomm toolbox', a library of quality-curated resources for audiences interested in science communication (Olesk et al., 2025, p.1; ECCSC, n.d, Resources section). The Center also has a matchmaking function, helping map and connect actors in the field and promoting opportunities in science communication (ECCSC, n.d., Home section). Finally, the COALESCE Hubs (Figure 4), organizations across Europe with expertise in science communication, act as 'physical multipliers' and help adapt resources to different languages and contexts (ECCSC, n.d., About section). The creation of these hubs is a direct result of the recommendation made by GlobalSCAPE, highlighted in Block B.

Figure 4. *Diagram of the COALESCE national and regional hubs across Europe.*[9]

[9] *Note*. From *scicommcentre.eu* (COALESCE Hubs section), by European Centre for Science Communication, n.d.

COALESCE itself has also developed specific instruments, among them the principles, standards and criteria (PSC) framework, and the Crisis Navigator. Both instruments are framed as self-reflection or support tools which are meant to guide stakeholders in the finding of their own answers. The PSC framework was adapted from ENJOI's SPIs (Olesk et al., 2025), being a clear example of the contribution of H2020 tools. The Crisis Navigator, on the other hand, is a novel tool proposed by COALESCE to help science communication actors face crisis situations effectively. It is described as a "sensitizing tool" rather than a "what to do" tool (Willems et al., 2026, p. 3) and breaks down the process in four stages: pre-crisis, imminent crisis, actual crisis and post-crisis (Figure 5).

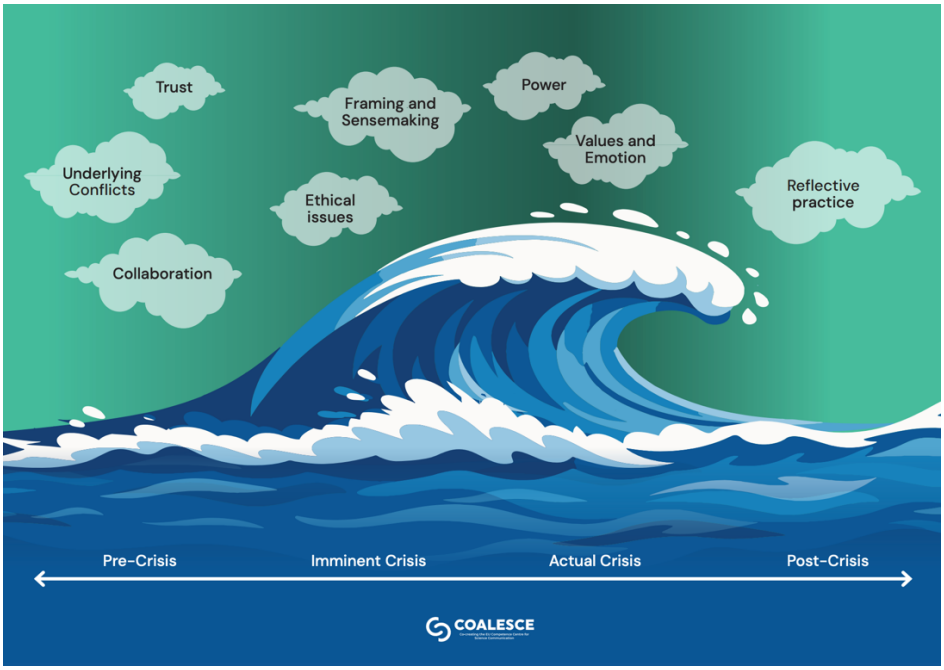

***Figure 5**. Visual representation of the Crisis Navigator for rapid mobilization of science communication developed by COALESCE.*[10]

In addition, a new type of deliverable is introduced through the 'Scicomm Notes' which evaluate specific genres related to senses, the first one having been dedicated to visual formats such as "illustration, photography, film, animation, video abstracts, infographics, and data visualizations" (Wilkinson et al., 2026, p. 1). When it comes to training, COALESCE has developed the "SciComm Lunchtime Series" to test and develop training sessions that will become part of the services offered by the Competence Center (ECCSC, n.d, Training section).

[10] *Note*. From *Crisis Navigator for Rapid Mobilisation of Science Communication for Science Communication Professionals*, by Willems et al., 2026, p. 2.

Audiences and Roles

Block C offers a closer look into 4H stakeholders and names actors more concretely. Firstly, stakeholders are segmented according to training needs, differentiating among researchers, communication officers, general journalists, staff of science museums and science centers, and those working in civil society organizations (CSOs) (Mannino et al., 2024). Within this landscape, science communicators are positioned as mediators who have a key role in acting as "a bridge between scientists and other groups, including journalists and policy makers, as well as wider publics" (Mannino et al., 2024, p. 25). Citizens are framed as active participants in the co-creation of knowledge, whose input can be valuable to scientists and policymakers (Moreno-Castro et al., 2025, p. 10), and there is a call to move beyond one-way information transmission (Roedema et al., 2025, p. 11).

This role differentiation is visible in the Competence Center itself. Training sessions are targeted at specific profiles, including scientists, researchers or academics, policy or decision makers, communication officers, and journalists and media professionals among others (ECCSC, n.d., Training section). In addition, specific tools are being adapted based on the stakeholders who will use them and who their audiences may be. For example, there are currently two different versions of the Crisis Navigator, one targeted to science communication professionals and another to researchers, adapted to the different needs of these actors.

Overall, Block C shows an overarching consolidation goal, embedded in the conceptual framework of the project itself. The ECCSC becomes the main infrastructure through which COALESCE curates knowledge and resources into an instrument to be used by R&I stakeholders in the long-term.

5.4. Discussion: From H2020 to Horizon Europe

By answering the three sub-questions regarding priorities, tools and audiences and roles, the analysis explored how science communication is framed, operationalized and assigned through the specific sources per block: EU policy framing (Block A), H2020 project results (Block B) and Horizon Europe (Block C). The results from the analysis allow to identify some themes or patterns, synthesized for quick comparison in Table 1, which shows the evolution per dimension cross-block if read horizontally, and the dominant logic within each block if read vertically. Using the findings in Table 1, the discussion will focus on addressing the main

research question: how the EU frames and consolidates science communication knowledge in the transition from Horizon 2020 to Horizon Europe.

	Block A	Block B	Block C
Dimension	*EU Policy Framing*	*H2020 Project Portfolio*	*Horizon Europe / COALESCE*
SQ1. Priorities *Main priorities, new priorities vs. previous blocks*	Dominant priorities H2020: Trust, quality and reliability, mis/disinformation, citizen engagement/empowerment, training (secondary). Dominant priorities Horizon Europe: all previous ones, plus crisis preparedness. Framing: identifies the priorities/challenges that science communication should address initially.	Priorities maintained from Block A: Trust, quality, mis/disinformation, citizen engagement/empowerment, training (more relevant, not yet dominant). Emerging priorities: inclusion, diversity, and global perspectives, incentives for science communication professionals. Framing: problems/challenges are identified and solutions are proposed.	Priorities maintained from other blocks: trust, quality, mis/disinformation, citizen engagement (co-creation), crisis preparedness and uncertainty (from Block A) Emerging priorities: training and professionalization become dominant (and operationalized). Framing: focus on consolidation of knowledge and resources to face challenges.
SQ2. Operationalization *Type of tools created or proposed*	Instruments asked for in H2020: Goals set, but no specific format demanded for outputs. Focus on measurement/assessment good practices identification. Instruments asked for in Horizon Europe: ECCSC, handbook, toolkits.	Instruments delivered: guides, quality standards, checklists, manifestos, frameworks, policy briefs. Additional instruments called for: hubs to act as knowledge brokers.	Instruments delivered (tools and infrastructure): ECCSC, network of hubs, matchmaking, training programs, strategic tools, frameworks, policy briefs. Instruments adapted and curated from H2020. Tools organized, not just produced.
SQ3. Audiences & Roles *Actors named, roles assigned, audiences addressed*	Actors named but roles not clearly assigned. Need to identify targets for science communication (citizens vs. 4H stakeholders) acknowledged. Citizens framed as central.	'General public' rejected as a group. Typology of roles proposed (conduits, convenors, educators, watchdogs). Citizen input integrated into definition of roles.	Stakeholders segmented by function and training needs. Communicators as mediators/bridges. Citizens as co-creators. Tools and trainings adapted according to role.
Main logic	Setting the agenda, what the EU asks from the projects.	Building a knowledge base (taking stock) on the state and landscape of science communication.	Consolidation and curation of existing tools and results into lasting science communication infrastructure.

***Table 1**. Cross-block comparison of science communication across Blocks A, B and C (SQ1–SQ3).*[11]

[11] *Note*. Own elaboration. Table layout formatted with Claude (blank template); structure, content and analysis are the author's own.

To begin with, the analysis shows a large degree of continuity between H2020 and Horizon Europe regarding thematic priorities. As shown in Table 1, these mainly include trust, mis/disinformation, quality, citizen engagement/empowerment and training. This continuity shows the interaction and feedback-loop between the blocks: the most recent documents in Block A are built from the knowledge obtained during Block B, and at the same time these projects respond to the priorities set out by the EC in Block A. This reflects a co-creation and consolidation process where the EC sets the agenda by defining areas of focus for projects, and once these projects deliver outputs the results become a part of the institutional EU narrative.

However, these dominant priorities are approached from different angles depending on the block. In Block B, trust is primarily framed in terms of credibility and accuracy. While these dimensions are maintained in Block C, trust is also presented as a relational and dynamic process, influenced by values, emotions and contexts (Moreno-Castro et al., 2025; Roedema et al., 2025).

In addition, some new priorities appear due to findings from previous projects and to contextual changes. For example, the need for training is first identified in H2020 project results after conducting research in the field, and is then included in the Horizon Europe call in Block A. It thus becomes a dominant priority in COALESCE, which operationalizes how to offer that training, as a response to this call. Crisis preparedness also emerges at a later stage in Block A, in this case as a response to a context characterized by growing uncertainties and unexpected crises that need to be managed. COVID-19 erupted in the last years of H2020 and evidenced the need for preparation pre-crisis, which becomes dominant in Horizon Europe.

There is also continuity when looking at the instruments delivered. Six of the eight corpus documents analyzed in Block C explicitly reference knowledge and instruments generated during H2020. Instruments developed in Block C are sometimes directly adapted from Block B outputs, an example being COALESCE's principles, standards and criteria for quality science communication (Olesk et al., 2025), that adapted the approach from ENJOI's SPIs (Catanzaro et al., 2022). In addition, the concrete tools asked for in the Block A during the Horizon Europe call are delivered, mainly the ECCSC and the toolkits within it.

A key change between Blocks B and C is the creation of not only tools, but more importantly infrastructure. Consolidation is addressed directly, explaining how the goal is often not to contribute new research but to synthesize and consolidate previous results into long lasting infrastructure where existing tools can be organized and shared (ECCSC, n.d.). New

specific tools are introduced mainly to address emerging priorities in Horizon Europe, as is the case of the Crisis Navigator (Willems et al., 2026).

Audiences and roles are also maintained but become more precise in each block. Block A names key actors and stakeholders, but does not define their functions, while Block B provides more concrete typologies and citizen input for role allocation (Hyldgård & Langkjær, 2021). Block C then uses the knowledge obtained in Block B to adapt tools and training to specific professionals. In general, there is a move from identifying who the relevant actors are to defining what they do and providing them with the appropriate instruments accordingly.

In general, a continuity and consolidation effort can be seen in the way priorities, instruments and role definitions are carried forward in the transition from H2020 to Horizon Europe. The analysis shows that the EU frames and consolidates science communication through different steps, easily traced in the 'main logic' row in Table 1. This dominant logic differs in each block and represents the different phases in the process of consolidating science communication knowledge: Block A sets the agenda by determining what the priorities are in science communication and what is expected from the projects to be funded; Block B builds a knowledge base by producing tools and recommendations based on that agenda; and finally Block C organizes and translates that knowledge and tools into long-term infrastructures.

6. CONCLUSIONS AND PROPOSALS

This study has examined how the European Union frames and consolidates science communication knowledge in the transition from Horizon 2020 to Horizon Europe. Through a thematic analysis of 21 institutional and project-created documents, organized across three analytical blocks, EU policy framing texts (Block A), H2020 project outputs (Block B) and Horizon Europe/COALESCE deliverables (Block C), the analysis traced how science communication priorities are constructed, what instruments are proposed or created, and what roles and audiences are defined. The operationalization of these dimensions as sub-questions allowed the answering of the main research question through a cross-block comparison.

Before diving into the concrete findings of this study, it presents a number of limitations that must be addressed. First, the scope of the corpus did not allow for an in-depth analysis of the eight SwafS-19 projects individually, as breadth was prioritized over depth in Block B. Nonetheless, certain sources such as policy briefs were selected due to their ability to

synthesize key project findings, offering a sufficient overview of the main dimensions explored. Second, COALESCE is a live and ongoing project, which is set to continue until March 2027, and new deliverables and resources are being published and updated constantly. The ECCSC's website is also currently being built, which means that sections are not yet complete and even unavailable at times. The findings in Block C are thus a snapshot of a process that is still unfolding and should be revisited once the COALESCE project ends in 2027, since new deliverables and instruments produced in the last phase of the project could offer additional insights. Finally, the study initially set out to explore a fourth dimension on impact and assessment of science communication efforts. This dimension was finally dropped from the analysis, as it was the sub-question least clearly addressed by the chosen corpus sources and did not provide sufficient evidence to allow a cross-block comparison. While the scope was reduced, the decision to remove this dimension allowed for a more focused analysis of the remaining three sub-questions.

In spite of these limitations, the main findings of this study evidence a consolidation objective in the transition from Horizon 2020 to Horizon Europe. Regarding the first objective, the evidence reveals that the EU frames and consolidates science communication knowledge through different phases, moving from definition of priorities and expected outcomes by the Commission, to the creation of a knowledge base and instruments by funded projects in response, and lastly to the consolidation of that knowledge into a long-lasting infrastructure to guide science communication efforts in the EU in the years to come. Regarding the second objective, the main priorities identified in H2020, trust, quality, mis/disinformation, citizen engagement and training, are maintained in Horizon Europe, but sometimes slightly reframed. Instruments are maintained and, in some cases, directly adapted from H2020 outputs, while audiences and roles also show continuity through a clearer segmentation by function and needs. All in all, H2020 results are carried forward in Horizon Europe in terms of priorities, instruments and roles, but there are also new shifts that respond to emerging priorities and needs affected by context.

These findings open several lines for future research. As noted above, impact and assessment of science communication efforts is another dimension of interest which could benefit from a separate in-depth exploration. While the sources in this study did not provide sufficient evidence to justify its inclusion, the exploration of additional H2020 and Horizon Europe instruments and deliverables that specifically address impact and assessment could be useful to determine how and whether the EU measures the effectiveness of science communication.

More broadly, the consolidation effort traced in this study raises a further question: whether it will outlive the funding cycle that made it possible. With the Horizon Europe program coming to an end (2021-2027), so does the funding that sustains the infrastructure developed by COALESCE. The opportunity presents itself to examine the role science communication will play in the upcoming Framework Programme (2028-2034): will the infrastructure developed during Horizon Europe (the Competence Center, the network of hubs, the training and quality-curated resources) be sustained, further developed or possibly abandoned? The analysis applied in this study, tracing priorities, instruments and roles, can be replicated to examine future EU developments in the field of science communication, as well as to explore other policy areas where the EU might want to consolidate project results into longer-lasting infrastructure.

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8. APPENDICES

Appendix A. Corpus Sources Per Block

Coding rules

Y — the document explicitly and substantively addresses the sub-question.

P — the document addresses the sub-question partially, implicitly, or only in passing.

N — the sub-question is not addressed.

***Table A1**. Complete Corpus of Block A sources.*

Doc ID	Document	Year	Author/In-text citation	SQ1	SQ2	SQ3
A1	H2020 SwafS-19 Call Text: "Taking stock and re-examining the role of science communication"	First published: 2017 Last updated: 2025	(European Commission, 2025)	Y	P	Y
A2	Science communication: Achievements in Horizon 2020 and recommendations on the way forward	2020	EC DG RTD (European Commission, 2020a)	Y	Y	Y
A3	Horizon Europe Call Text: HORIZON-WIDERA-2022-ERA-01-60 "A European competence centre for science communication"	2022	(European Commission, 2022)	Y	Y	P
A4	CORDIS Results Pack on Science Communication	2024	EU Publications Office / CORDIS (on behalf of the EC (European Commission, 2024)	Y	Y	P

***Table A2**. Complete Corpus of Block B sources.*

Doc ID	Project	Document	Year	Type	In-text citation	SQ1	SQ2	SQ3
B1	CONCISE: Communication role on perception and beliefs of EU Citizens about Science (2019–2021)	Policy brief 2020. Recommendations for European policymakers and communicators	2020	Policy brief	(Moreno et al., 2020)	P	P	Y

B2	QUEST: QUality and Effectiveness in Science and Technology Communication (2019–2022)	12 Quality Indicators for Science Communication	2021	Toolkit/ guide	(Olesk et al., 2021)	Y	Y	P
B3	RETHINK (2019–2022)	RETHINK briefs: Improving the practice of science communication	2021	Policy brief	(Hyldgård & Langkjær, 2021)	Y	Y	Y
B4	TRESCA: Trustworthy, Reliable and Engaging Scientific Communication Approaches (2020–2022)	D6.6: Final Policy Brief. Science Communication in Support of Evidence-Based Policy-Making	2022	Policy brief	(Szüdi et al., 2022)	Y	Y	P
B5	ENJOI: ENgagement and Journalism Innovation for Outstanding Open Science Communication (2021–2024)	Manifesto for Outstanding Open Science Communication (Standards, Principles and Indicators)	2022	Normative framework	(Catanzaro et al., 2022)	Y	Y	P
B6	GlobalSCAPE: Global Science Communication and Perception (2021–2023)	Supporting Global Science Communication: A White Paper on Recommended Next Steps	2023	White Paper	(Taylor & Roche, 2023)	Y	Y	P
B7	NEWSERA (2020–2023)	Policy Brief 2: Citizen science as the new paradigm	2023	Policy brief	(Magalhães et al., 2023a)	Y	Y	P
B8	NEWSERA (2020–2023)	Guide of science communication in citizen science projects and citizen science journalism	2023	Guidelines	(Magalhães et al., 2023b)	P	Y	Y
B9	ParCos: Participatory Communication of Science (2020–2023)	Final Version of Bristol Framework	2023	Methodological framework	(Evans et al., 2023)	P	Y	Y

***Table A3**. Complete Corpus of Block C sources.*

Doc ID	Document	Year	Type	In-text citation	SQ1	SQ2	SQ3
C1	D4.4 Report on Educational Needs in SciComm	2024	Public deliverable (Report)	(Mannino et al., 2024)	Y	Y	Y
C2	D2.2: Strategies to address critical challenges to effective science-society relations, including misinformation and trust	2025	Public deliverable (Strategy report)	(Moreno-Castro et al., 2025)	Y	Y	P
C3	Principles, standards and criteria for quality science communication resources	2025	Public deliverable (Quality framework)	(Olesk et al., 2025)	P	Y	P
C4	Policy Brief: Boosting the Science Communication Ecosystem in Europe- full steam ahead	2025	Policy brief	(Magalhães, & Mendoza, 2025)	Y	Y	Y
C5	Policy Brief on excellent science communication for urgent societal challenges #2	2025	Policy brief	(Roedema et al., 2025)	Y	Y	P
C6	Crisis Navigator for Rapid Mobilisation of Science Communication for Science Communication Professionals	2026	Public deliverable (Strategic tool)	(Willems et al., 2026)	P	Y	P
C7	SciComm Note: Sight	2026	Public deliverable (Thematic review)	(Wilkinson et al., 2026)	P	Y	P
C8	European Competence Centre for Science Communication: scicommcentre.eu	–	Web content	(ECCSC, n.d.)	Y	Y	Y

Appendix B. Template Used for Analysis

1. Identification

Document ID	
Block	
Document type	
Year	
Issuing body / authors	
Length & format	
Associated project (Block B only)	

2. Sub-question coding

SQ1. Continuity and framing
Does the document describe specific science communication priorities (e.g., trust, misinformation, stakeholder engagement, citizen science, open science)? **Coding (Y / P / N):** **Which priorities appear?** **How are they framed (problem, opportunity, etc)?** **Supporting quotes or paraphrase (with page):**

SQ2. Operationalization
Does the document propose guidelines, instruments, or best practices for specific science communication actions, including specific formats (e.g., video, policy briefs)? **Coding (Y / P / N):** **What instruments or formats are proposed (toolkits, training, standards, video, briefs, …)?**

How concrete are these instruments?

Supporting quotes or paraphrase (with page):

SQ3. Audiences and roles
Does the document define and allocate communicative roles and responsibilities among key actors (e.g., scientists, intermediaries, citizens, policymakers)? **Coding (Y / P / N):** **Which actors are named, and what role is assigned to each?** **How are audiences and roles segmented (general public, policymakers, disengaged, etc)?** **Supporting quotes or paraphrase (with page):**

3. Synthesis

Dominant sub-question	
Relevance to the H2020–HE transition	
Selected for in-depth discussion	
Notes/follow-ups	