

FRONTIERS

science journalism initiative

Stakeholder Analysis

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1. Summary

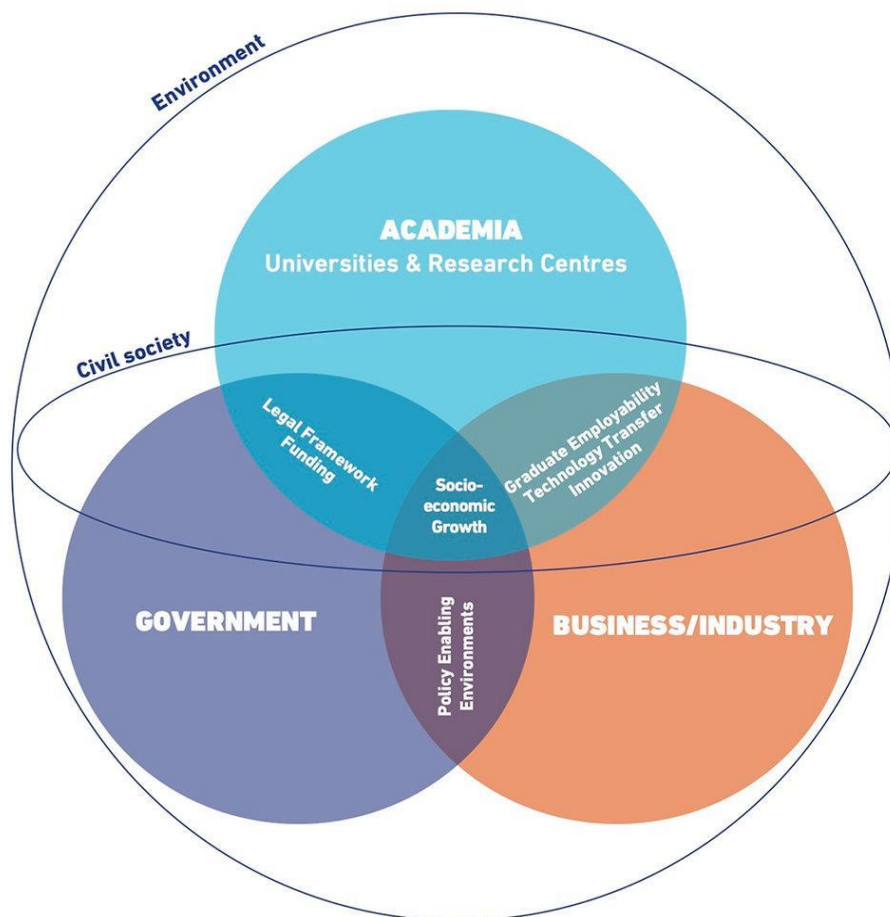
This stakeholder analysis has identified key groups involved in the science journalism fellowship program, their roles, interests, and the level of engagement required. By implementing targeted engagement strategies and regularly evaluating their effectiveness, the FRONTIERS consortium will monitor the outcomes of the ERC Science journalism fellowship program.

2. Introduction

We have conducted a stakeholder analysis (SA) to identify stakeholders who are potentially interested in, and impacted by, the FRONTIERS project.

Given the multifaceted nature of the project, we utilized an approach based on the Quadruple helix model¹. This model mandates collaboration and interaction among various players to solve complex challenges (see *Figure 1*).

Figure 1 – The Quadruple Helix model of interaction among stakeholders



¹ Carayannis, Elias G.; Campbell, David F.J. (2009). "'Mode 3' and 'Quadruple Helix': toward a 21st century fractal innovation ecosystem". *International Journal of Technology Management*. **46** (3/4): 201.

Our analysis included stakeholders from:

- 1) public authorities, such as government and regional agencies, and policymakers;
- 2) industries involved in frontier science projects and products, including their research & development departments. Media organizations/outlets and press offices were also included in this group;
- 3) academia, encompassing research institutes/centers and universities;
- 4) the general public, including the lay public and non-governmental organizations.

The SA involved several sequential steps:

1. Identification of the stakeholders
2. Definition of the stakeholders
3. Classification of the stakeholders according to their interest in the FRONTIERS project and their power to influence the project's output (Interest/Power matrix)
4. Assessment of stakeholders' needs or expectations concerning the project (partially developed within this deliverable as the full analysis of needs and expectations based on semi-structured interviews with the main stakeholders is planned for *D3.2: Best practices guidelines* due by M24)
5. Identification of planned actions to reach each stakeholder.

Although we completed the stakeholder analysis at the initial phase of the project, the analysis may be renewed and repeated in later phases. This ongoing process will serve as a tool to reassess key issues or to include new stakeholders based on emerging results.

3. Methods

Identification of the Stakeholders

To identify potential key stakeholders, we searched the EU-funded CORDIS database for projects on science communication and science journalism funded under the Horizon 2020 *Science with and for Society* program. A total of 8 projects were identified, each focusing on different aspects of science communication. The complete list is as follows:

- [TRESCA](#) Trustworthy, Reliable and Engaging Scientific Communication Approaches
- [ParCos](#) Participatory Communication of Science
- [GlobalSCAPE](#) Global Science Communication and Perception
- [NEWSERA](#) Citizen Science as the new paradigm for Science Communication
- [RETHINK](#)
- [QUEST](#) QUality and Effectiveness in Science and Technology communication
- [CONCISE](#) Communication role on perception and beliefs of EU Citizens about Science
- [ENJOI](#) ENGagement and JOurnalism Innovation for Outstanding Open Science Communication

We also reviewed the existing scientific literature on Google Scholar using the keywords 'science communication + stakeholders' and 'science journalism + stakeholders'. We analyzed all the retrieved documents published in the last 10 years.

We also leverage two recent extended analysis of the science communication and science journalism landscape produced by QUEST² and ENJOI³ projects.

From this initial extensive analysis, a list of 89 stakeholders was generated, including overlapping terms defining the same stakeholder from different articles or projects. An attempt to shorten the list by eliminating duplicates resulted in 49 stakeholders, which was further reduced to a 22-item list after merging terms with similar or overlapping meanings (see below).

² QUEST Project. D1.1: Summary report: European Science Communication today. <https://questproject.eu/download/deliverable-1-1-summary-report-european-science-communication-today/> (Retrieved on October 15, 2023).

³ ENJOI Project. Deliverable 5.1 Literature review about the science-journalism relationship. Version 1.3 <https://zenodo.org/record/6207978#.Ywudlx3OMxe> (Retrieved on October 15, 2023)

For each stakeholder, a brief description and definition were prepared. This approach ensures clarity in choosing or contacting a stakeholder and increases the reproducibility of the stakeholder identification and SA.

Classification of the Stakeholders

Based on their interest in the FRONTIERS project and their power to influence the project's output, the 22 stakeholders were classified using the “Interest/Power matrix”.

From the list of 22 stakeholders, 12 have been identified as key stakeholders as they have high interest in, and significant power over, the project. The group of key stakeholders includes:

- European Commission
- Industrial/Company Research & Development Centers
- Internet/Social Media Managers
- Press Offices and PR Experts
- Research Funding Bodies
- Research Institutes/Centers
- Researchers (Principal Investigators)
- Science Communicators
- Science Journalist Networks and Associations
- Science Journalists
- Scientific Communities and Societies
- Universities and University Alliances

Representatives for each of the key stakeholders have been identified for interviews in the next steps of the SA, especially for D3.2 due by M24.

For any questions or further details, contact the FRONTIERS Coordination and Support Office via e-mail (support@frontiersmedia.eu).

Level of Involvement

We identified the level of involvement of the main stakeholders based on the analysis of the scientific and grey literature, on the outcomes of four semi-structured interviews conducted with representatives of the hosting institutions of the ERC pilot phase of the project (conducted before the development of the FRONTIERS project) and on the analysis of the reports provided by ERC summarizing the main outcomes of the pilot of science journalism fellowships developed in three research institution in Italy, Spain and Czech Republic (see *Appendix*).

We applied the "Inform-Consult-Collaborate" approach to the list of stakeholders. In the stakeholder analysis, there is a framework used to categorize and manage different levels of engagement in a project or decision-making process.

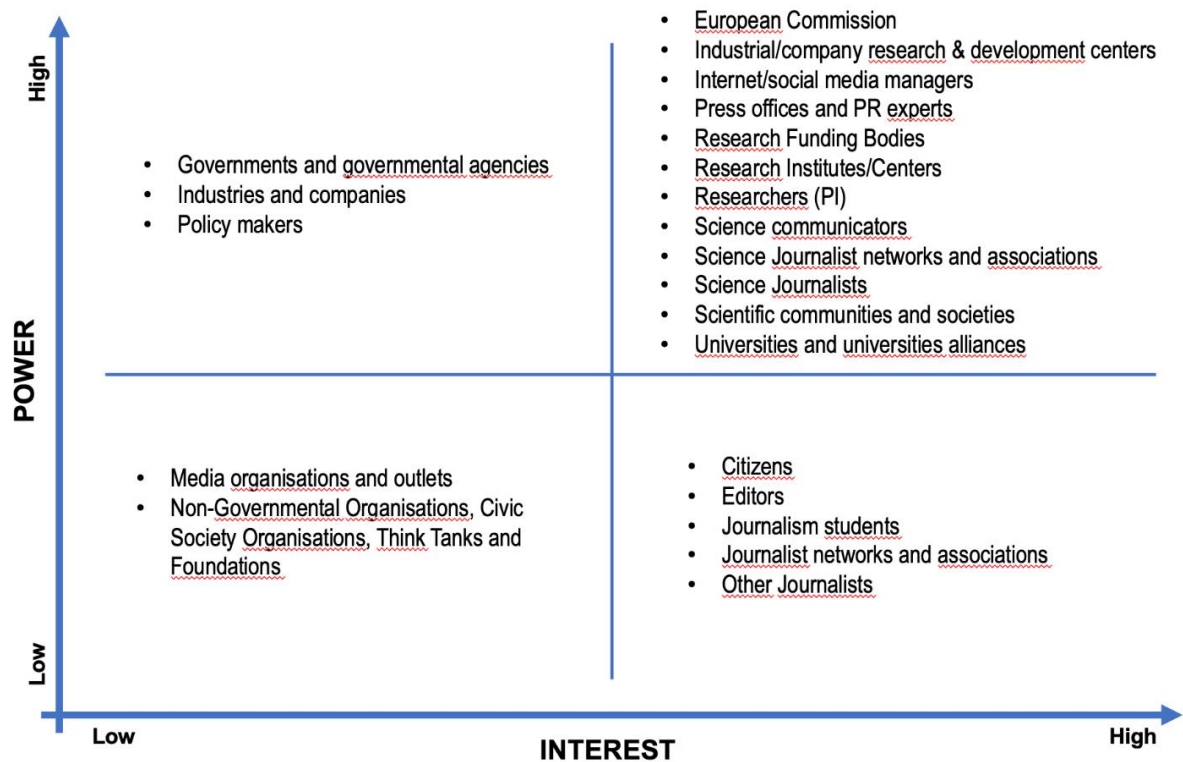
1. **Inform:** This is the most basic level of engagement. It involves keeping stakeholders updated about project developments, decisions, and outcomes. The communication is typically one-way, from the project team to the stakeholders. The objective is to ensure stakeholders are aware of what is happening but not necessarily to seek their input or feedback.
2. **Consult:** At this level, stakeholders are more actively engaged. The project team seeks input, feedback, and suggestions from stakeholders. This could involve surveys, meetings, focus groups, or public forums. The goal is to gather stakeholder perspectives and use them to inform decision-making, although the final decision still rests with the project team.
3. **Collaborate:** Collaboration represents a higher degree of stakeholder engagement. Here, stakeholders are involved in the decision-making process, often working alongside the project team. This can include joint planning, development of alternatives, and shared decision-making responsibilities. The objective is to work together with stakeholders to find mutually beneficial solutions and to co-create value.

This approach helps in identifying how deeply stakeholders should be involved in a project based on their interest, influence, and potential impact on the project's success. Each level requires different strategies and resources, and choosing the appropriate level of engagement will be crucial for effective stakeholder management.

A specific level of involvement has been adopted for the identified stakeholders belonging to each of the four quadrants of an engagement matrix (see *Figure 2*):

- High Interest/High Power (key stakeholders): Inform-Consult-Collaborate
- Low Interest/High Power: Inform-Consult
- High Interest/Low Power: Inform-Consult
- Low Interest/Low Power: Inform

Figure 2 – Matrix of involvement of the Stakeholders



4. Stakeholders description

Key Stakeholders - High Interest/High Power

1. European Commission

- **Role and Interests:** As the primary funder, the European Commission's role extends beyond financial support to policy shaping and ensuring alignment with broader EU objectives in science and education. It has also an important role in disseminating the project among the European research institutions and convincing the research institutions that hosting science journalists fulfill their duty toward society. Within this frame, ERC will help support the initiative and disseminate results to ERC grantees and the scientific community.
- **Challenges:** Ensuring transparency and effectiveness in the utilization of funds while guaranteeing both the independence of the journalists and the researchers. Fostering the importance of basic and frontier research for the development of the European knowledge ecosystem.
- **Actions:** The Consortium is already working in close collaboration with the funding institution to identify areas of mutual support in full respect of the autonomy of the research institutions, the researchers, the journalists and the members of the Consortium. The leader of the Dissemination and communication WP of the FRONTIERS project will share its engagement plan via the Project Coordinator with the funding institution.

2. Research Institutes/Centers

- **Role and Interests:** Hosts for residencies and key collaborators in establishing the administrative rules of the fellowship program. Their interest lies in highlighting cutting-edge research and gaining visibility in the media.
- **Challenges:** Ensuring accurate representation of research in media, providing resources for journalist residencies, and maintaining research integrity and the journalists' autonomy.
- **Actions:** A list of possible hosting institutions will be delivered by M24 (*D2.4 Database of hosting institutions*) and updated as a legacy of the project by M48. An open permanent call for participation will be opened by M7, will be available on FRONTIERS web site and disseminated via social media. The Coordination and Support office already developed a set of questions to identify the main issue that each possible hosting institution is envisaging and will need to overcome to join the project. Online training sessions to help the institutions willing to host a journalist in residence will be organized by the Coordination and Support office.

3. Science Journalists

- **Role and Interests:** As primary program participants, their interest is in accessing credible and interesting information, enhancing their

scientific knowledge in science and their reporting skills, and fostering career development and their attractiveness on the job market.

- **Challenges:** Understanding complex scientific topics, developing investigative skills in the field of frontier science, collaborating with scientists, maintaining journalistic independence while collaborating closely with scientists.
- **Actions:** The Coordination and Support office will engage with the science journalists mainly via their national and international professional associations, to disseminate the project, advertise the calls, and collect suggestions and feedback. The CSO has already developed a set of questions for semi-structured interviews to shape the fellowship program following the unmet needs of the science journalism community.

4. Universities and University Alliances

- **Role and Interests:** Providing academic insights, contributing to curriculum development, and fostering interdisciplinary research.
- **Challenges:** Integrating journalistic practices into academic research, balancing academic rigor with media demands; integrating fellow journalists in the academic environment.
- **Actions:** The Coordination and Support office has identified the European University Alliances developed within the [European Universities Initiative](#) as key partners for the involvement of academic research institutions. The CSO is already in touch with the Interalliance Fora for Public Engagement to develop common initiatives.

5. Scientific Communities and Societies

- **Role and Interests:** Advising on scientific accuracy, contributing content, and ensuring research is represented correctly to the public.
- **Challenges:** Engaging with media while maintaining scientific credibility, translating complex science into accessible information. Training its members in interacting with the media.
- **Actions:** The CSO is developing a list of scientific societies that could be partners in disseminating the project and in contributing to design it in a way that is suitable also for the researchers' community. A first collaboration has been already established with the [Association of ERC Grantees](#).

Other Stakeholders - Varying Levels of Interest/Power

The stakeholder analysis identified also other possible stakeholders whose level of engagement and actions will be developed all along the project, in accordance with their expression of interest.

1. **Governments and Governmental Agencies**
 - **Role and Interests:** Oversight on regulatory and policy aspects, promoting science education and national research interests.
 - **Challenges:** Aligning project goals with national policies, managing diverse public expectations, and supporting international independent fellow journalists under national rules and policies.
2. **Industries and Companies**
 - **Role and Interests:** Potentially interested in innovation promotion and corporate visibility in the scientific arena.
 - **Challenges:** Balancing commercial interests with scientific integrity; managing internal policies regarding the relationship with the media with the independence and freedom of expression of fellow journalists.
3. **Policy Makers**
 - **Role and Interests:** Influencing science policy and societal impact of research.
 - **Challenges:** Balancing scientific advancements with public interests and policy constraints.
4. **Media Organizations and Outlets**
 - **Role and Interests:** Serving as channels for disseminating project findings and engaging audiences with science content. Acting as multipliers of the project impact by recognizing the professional skills of the fellows and by supporting their professional careers and opportunities.
 - **Challenges:** Balancing audience interests with scientific accuracy, and adapting to diverse media formats. Recognizing the economic and collective value of trained science journalists for their audience.
5. **Citizens and NGOs**
 - **Role and Interests:** Representing the public's perspective, ensuring science communication is accessible and relevant.
 - **Challenges:** Understanding complex scientific topics, ensuring representation of diverse public interests.

5. Engagement Strategies

The project has already established general engagement strategies for the main stakeholders.

Collaborative Workshops and Seminars

Design and Implementation: The program will host a series of interdisciplinary workshops and seminars aimed at fostering collaboration and knowledge exchange between science journalists and researchers. These events will feature expert speakers, panel discussions, and interactive sessions to facilitate a deep understanding of the nuances of science communication.

Expected Impact: These workshops are expected to result in stronger networks among participants, leading to collaborative projects and initiatives. Journalists will gain insights into scientific processes, while scientists will learn about effective communication strategies, ultimately enhancing the quality of science journalism. The final outcome is building a community of practice, fostering collaborative projects, and enhancing stakeholder relationships.

Training Programs

Curriculum Development: The program will offer specialized training sessions focusing on enhancing journalistic skills in science reporting, including research methods, ethical reporting, and effective communication. These sessions will be tailored to address the specific needs of science journalists, with input from experienced practitioners and academicians.

Benefits Analysis: The training is anticipated to elevate the standard of science journalism, equipping journalists with the skills to report complex scientific topics accurately and engagingly. This could foster public trust in science journalism and promote informed public discourse on scientific matters.

Online Platforms and Social Media Engagement

Objective: The main objective is to leverage the power of digital media for wider outreach and engagement. The project will develop an interactive online platform, maintaining active social media channels, and utilizing multimedia content for broader reach.

Outcome: The expected outcome is an enhanced online presence, increased accessibility of program outputs, and heightened engagement with journalists, institutions, and a global audience.

According to the stakeholder analysis and the first outcomes from semi-structured interviews with hosting institutions and researchers' representatives, additional engagement activities should engage a wider audience. Possible initiatives can include:

Public Fora and Debates

Event Planning: Public forums and debates could be organized to engage the broader community in discussions about science and its societal implications. These events should be open to the public and include a diverse range of participants, including scientists, journalists, policy makers, and community leaders.

Community Engagement: These events aim to bridge the gap between science and society, increasing public interest and understanding of scientific issues. They could be hosted by the hosting institutions and serve as platforms for open dialogue, allowing the public to voice their perspectives and concerns.

6. Monitoring and Evaluation

Engagement Assessment: The effectiveness of the engagement strategies will be continually assessed using various tools such as surveys, feedback forms, and social media analytics. Regular assessments will help gauge the level of stakeholders involvement and satisfaction.

Feedback Mechanisms: A system for collecting and analyzing feedback from all stakeholders will be implemented. This feedback will be crucial for making iterative improvements to the program and ensuring that it remains aligned with the needs and expectations of its stakeholders.

7. Challenges and Mitigation Strategies

Risk Identification: Potential challenges, such as differing expectations among stakeholders, resource constraints, and communication barriers, will be identified proactively. By anticipating these challenges, the program can develop targeted strategies to address them.

Mitigation Planning: To address these challenges, the program will establish clear communication channels, provide resources and support where needed, and ensure that all stakeholders perspectives are considered in decision-making processes. Regular stakeholders meetings and progress reports will also be used to identify and address any issues promptly.

8. Conclusions

Summary of Findings: This stakeholders analysis has identified key groups involved in the science journalism fellowship program, their roles, interests, and the level of engagement required. By implementing targeted engagement strategies and regularly evaluating their effectiveness, the program is well-positioned to achieve its objectives.

Future Directions: Looking ahead, the program aims to not only enhance the quality of science journalism but also to serve as a model for similar initiatives. The insights gained from this analysis and the subsequent implementation of the program can inform future efforts to bridge the gap between science and the media, ultimately contributing to a more informed and engaged public.

9. Appendix: Reports from the pilot phase

Main outcomes of the reports produced by the research institutions involved in the preliminary pilot project, according to three anonymized reports provided by the ERC.

Italian Pilot

- **Challenges in Stakeholder Engagement:** The primary issue was engaging a broad and diverse range of stakeholders. This included addressing specific queries from journalists and modifying the call content to ensure clarity and attract more applications.
- **Logistical and Administrative Constraints:** The process was complicated by administrative challenges, such as work permit requirements for non-EU journalists, which influenced the selection process and constrained the diversity of applicants.
- **Balancing Residency Schedules:** The organization of the residency was complex, involving balancing packed schedules of interaction with the researchers with the need for reflection and follow-up on certain aspects. The fellow journalist suggested having some unscheduled time for better processing of the experiences.
- **Physical Presence and Time Management:** The residency highlighted the importance of physical presence and time spent in fostering meaningful interactions between journalists and researchers. Extended interactions were beneficial for understanding and reporting on the research, but also posed challenges in terms of managing time effectively.
- **Communication Challenges:** Researchers and journalists faced challenges in ensuring accurate and effective communication. Researchers expressed concerns about simplifying complex scientific topics without losing accuracy, while journalists grappled with translating these complexities for a general audience.
- **Suggestions for Future Residencies:** Recommendations for future residencies included more flexibility in starting dates, modular residency durations for inclusivity, well-structured but adaptable programs, and ensuring journalist independence. Additionally, involving a variety of stakeholders (from administrative personnel to citizens and NGOs) beyond scientists was suggested to enrich the experience.
- **Positive Outcomes and Continued Engagement:** Despite these challenges, the residency was deemed a positive experience by both the journalist and the hosting institution. It enhanced scientists' awareness of the importance of interaction with journalists and provided valuable insights for the journalist's future work.

Spanish Pilot

1. **Limited Timeframe for Implementation:** According to the host institution, the program faced constraints due to a limited timeframe for its

implementation. This affected the planning and coordination of activities, as well as the pool of potential journalist candidates, ultimately impacting the quality and quantity of candidates aware of the opportunity.

2. **Lack of Prior Experience with Such Programs:** The institution did not have previous experience in hosting a journalist residency program. This lack of tradition or precedent posed challenges in integrating the journalist into the research environment and in aligning the program's objectives with institutional practices. Better guidance in the implementation of the project could be a solution for the newcomers.
3. **Challenges in Journalist Selection:** The selection process for the journalist was crucial and posed challenges. The need to negotiate details of collaboration and to find a candidate with the right mix of flexibility, professional qualifications, and enthusiasm was emphasized.
4. **Resource Constraints:** Both the journalist and the institution faced resource constraints. The journalist had to balance the residency program with other professional commitments, while the institution had to allocate time and resources to support the journalist's activities.
5. **Engagement and Impact Concerns:** There was a concern about the real impact of the program in terms of potential future collaborations and the dissemination of scientific content. The absence of a formal commitment from the journalist to produce news stories related to the residency led to some frustration among research staff and other participants. The need to develop an awareness of the importance of journalistic independence is a crucial point of the experience and of the interaction with the hosting institutions.
6. **Need for Clear Expectations and Deliverables:** The representatives of the hosting institution highlighted the importance of setting clear expectations and deliverables for the journalist. This included defining how they should report on their work, impressions, and the potential for future collaborations.
7. **Building Mutual Understanding and Trust:** Establishing a mutual understanding and trust between the journalist and the scientific community was essential but challenging. The journalist needed to navigate a new environment and build relationships with various stakeholders, including researchers and communication professionals.
8. **Balancing Editorial Independence and Institutional Goals:** Ensuring the journalist's editorial independence while aligning their work with the institution's communication goals was a delicate balance to maintain.
9. **Broader Implications for Science Communication:** The residency program underscored broader challenges in science communication, particularly the need for more impactful science journalism and the difficulties researchers face in making their work visible to the public.

Czech Pilot

1. **Complex Scientific Concepts:** The journalist encountered challenges in understanding and translating complex scientific concepts and research findings into layman's terms. This complexity sometimes made it difficult to effectively communicate the essence of scientific research to the

general public. Specific training in reporting complex topics to the general public could solve the issue for less experienced fellows.

2. **Balancing In-depth Research and Reporting Deadlines:** The journalist faced the challenge of balancing the need for in-depth research and understanding of scientific topics with the deadlines and demands of journalism. This balance is crucial for accurate and timely reporting and involves the interaction between the research institution, the journalist in residence and the media outlets.
3. **Ethical Considerations in Science Storytelling:** The journalist reflected on ethical aspects of science storytelling. This includes the challenge of presenting scientific findings accurately without sensationalizing them and maintaining journalistic integrity while navigating complex scientific information.
4. **Building Trust and Rapport with Researchers:** Establishing trust and rapport with scientists and researchers was crucial. The journalist needed to understand the perspectives of researchers while ensuring their journalistic objectives were met.
5. **Navigating Cultural and Institutional Differences:** As the residency was in a foreign country, the journalist had to navigate cultural and institutional differences, which could impact their understanding and reporting of scientific research.
6. **Professional and Personal Balancing:** Balancing professional journalism responsibilities with personal life, especially when the residency demands significant time commitment and travel, has been challenging and requires time for accurate personal planning.

All three reports (and the interviews conducted with the representatives of the hosting institutions of the pilot phase) highlight common challenges in the interaction between journalists and scientists in residency programs. Addressing these barriers requires a collaborative approach, clear communication, and an understanding of both scientific and journalistic practices. The engagement of other crucial stakeholders, like citizens and policymakers, is lacking in all three pilot fellowships and was perceived as necessary by the journalists (less necessary by the researchers).

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