



TECHNISCHE
UNIVERSITÄT
WIEN

Project Report:

Researcher Engagement in Open Science Related Projects and Initiatives – Lessons Learned

| | |
|--------------|---|
| Authors | Marie Czuray (TU Wien) |
| Contributors | Rob Carrillo, Federico Drago, Katharina Flicker, Sara Di Giorgio, Emilie Hermans, Gilles Mathieu, Andreas Rauber, Bernd Saurugger, Joseph van Wezel |
| Reviewed by | Isabel Caetano, Barbara Sanchez Solis |

Abstract

This report examines the objectives, benefits, and challenges of researcher engagement activities in the context of Open Science, and their contributions to the EOSC ecosystem. The findings are derived from a combination of desk research and insights gathered directly from project members of Open Science-related projects. The report addresses various facets of engagement, highlighting successful activities and strategies that provide tangible benefits directly impacting researchers' daily work ensuring substantial value. Equally important is the recognition of the diversity of researchers and a long-term vision that goes beyond immediate concerns.

The information in this document reflects only the author's views and the European Community is not liable for any use that may be made of the information contained therein. The information in this document is provided "as is" without guarantee or warranty of any kind, express or implied, including but not limited to the fitness of the information for a particular purpose. The user thereof uses the information at his/ her sole risk and liability.



This work is licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0). It is attributed to Marie Czuray.

Acknowledgements

Our heartfelt gratitude to all contributors for their support throughout this project. Your valuable input and collaboration have played an integral role in shaping the outcomes of these lessons learned. Thank you also for your unwavering commitment to Open Science and EOSC, and we eagerly anticipate the insightful discussions and future collaborations.

Table of Contents

| | |
|---|----|
| 1. Introduction and background | 4 |
| 2. Methodology | 5 |
| 3. Findings..... | 7 |
| 3.1 Types of researcher engagement activities | 8 |
| 3.2 Comparison of strategies in detail | 11 |
| 4. Lessons learned..... | 14 |
| 5. Suggested strategies | 16 |
| 6. Conclusion..... | 18 |
| Sources | 19 |
| Annex..... | 22 |

List of Tables

| | |
|--|----|
| Table 1 – Researcher engagement activities via funding | 8 |
| Table 2 – Researcher engagement activities via advocacy | 8 |
| Table 3 – Researcher engagement activities via content creation | 9 |
| Table 4 – Researcher engagement activities via collaboration/consultation | 9 |
| Table 5 – Researcher engagement activities via in-person/online events | 10 |
| Table 6 – Researcher engagement activities via communication materials | 10 |
| Table 7 – Researcher engagement activities via data collection | 10 |
| Table 8 – Researcher engagement strategies focusing on clarity and tangibility | 11 |
| Table 9 – Researcher engagement strategies enabling collaboration | 12 |
| Table 10 – Researcher engagement strategies embracing researcher participation | 12 |
| Table 11 – Researcher engagement strategies addressing practical needs | 13 |

1. Introduction and background

Researcher engagement in the European Open Science Cloud (EOSC) has been an ongoing effort since 2016, with continuous endeavours to formulate a coherent and harmonised strategy. Developing a unified approach in such a rapidly evolving environment is a significant challenge, but it is essential to ensure consistent and meaningful engagement across all research communities.

The evolution of EOSC has underscored the importance of developing such a strategy, which has the potential to enhance researcher engagement and fosters innovation. To support the successful implementation of EOSC's ambitious goals, this report explores two key questions:

- Which types of researcher engagement activities are effective in the context of Open Science and EOSC initiatives and projects?
- What are the lessons learned by partners participating in INFRAEOSC projects (H2020 and HE)?

The findings and outcomes of the collection of engagement activities are compiled into this comprehensive report. The gained insights will flow into the engagement strategies of EOSC related projects and into the activities of the HE Communication & Engagement Working Group. With significant actions and efforts already undertaken, the findings and lessons learned are intended to prevent potential pitfalls and enhance the effectiveness of forthcoming initiatives.

The primary objective of this report is to distil valuable take-away messages with a forward-looking perspective. To achieve this positive twist in engagement strategies, it is essential to embrace the challenges and learn from insights gained from previous activities. Addressing these issues head-on is the key to effectively engaging researchers in the EOSC ecosystem. The goal is to proactively identify challenges from past experiences and lessons learned to pave the way for more effective and successful future efforts within EOSC. The key messages in this report are intended to serve as beacons of guidance, illuminating a path towards excellence in researcher engagement while avoiding common pitfalls, ensuring that engagement in the EOSC initiative continues to thrive and make significant contributions to the research community and the broader European research landscape.

This report should inspire constructive discussions, foster collaboration, and help avoid duplication of less successful efforts. Thus, the ecosystem of researcher engagement within EOSC and beyond should be strengthened, and the principles of Open Science should be enhanced.

2. Methodology

The methodological approach was guided by a qualitative mixed-methods research design and drew upon on various sources of information, all of which contribute to key insights:

Desk Research:

- A wide range of sources were reviewed, focusing on relevant projects and initiatives related to researcher engagement within EOSC and Open Science. These sources included websites, news articles, project reports, and publications on Zenodo.
- Specific selection criteria were employed to ensure the inclusion of pertinent and representative projects in the analysis. These criteria included, inter alia, project relevance, publication date, and data availability.
- Pertinent information was collected from the selected sources, emphasising key points related to researcher engagement strategies, challenges, and outcomes.

While the initial desk research involved analysing various sources, it became evident that it did not yield the anticipated depth of insights and first-hand perspectives necessary for this analysis. Despite the extensive information available, these sources fell short of providing the comprehensive input needed to thoroughly understand what did NOT work regarding researcher engagement activities within EOSC and Open Science.

Recognizing the need to gather more nuanced and context-rich information, the project team decided to complement efforts by conducting interviews as a complementary research method. This approach allowed for a deeper exploration of the intricacies of researcher engagement, first-hand experiences, and opinions, enhancing the quality and depth of the research findings.

Interviews:

- In collaboration with project members from INFRAEOSC projects, a series of discussions was initiated to extract valuable insights, challenges, and best practices from their engagement activities.
- Interviewees were carefully selected, including individuals with diverse roles in Open Science projects, such as project managers, coordinators, work package and task leaders, and team members directly involved in researcher engagement activities and/or communication tasks. This diversity captures a well-rounded perspective on researcher engagement activities.
- These interviews were conducted through face-to-face and video calls, following a structured format, with predefined questions to ensure consistency and comprehensiveness. The questions explored topics such as engagement strategies, successes, challenges, and lessons learned.
- Nine project members from (completed) INFRAEOSC projects were interviewed, adding personal perspectives to the findings. In total, 32 Open Science related projects were analysed, comprising 12 H2020 INFRAEOSC projects, 9 HE INFRAEOSC projects, and 11 other projects, to extract valuable lessons and best practices. The projects and the links to each project are included in the chapter "Sources". The interview guideline can be found in the annex.

Data Analysis Process:

- The recorded interviews were partially transcribed and analysed to extract key insights, themes, and patterns. This approach enabled an in-depth exploration of researcher engagement practices, challenges, and strategies, as well as the aggregation and comparison of information, facilitating a structured examination of similarities and differences.

Findings:

- Interview findings were aggregated and synthesised to identify commonalities and variations in the responses. Thematic coding was employed to categorise responses and identify recurring themes.
- When combined with insights from desk research, these findings construct a comprehensive overview of researcher engagement practices, challenges, and successful strategies within EOSC.

3. Findings

Researcher engagement activities have encompassed a range of objectives:

Understand researchers:

- Gaining a better understanding of how research is evolving.
- Identifying current barriers and essential services for a well-functioning EOSC.
- Enhancing the understanding of visions, needs, and requirements in the context of Open Science.
- Developing visions on the future of research and its impact on research infrastructures.
- Ensuring a diverse and inclusive representation of perspectives.

Promote new research processes:

- Promoting the uptake of FAIR data practices and services across scientific communities.
- Providing findings to engage a wider stakeholder community.
- Empower "FAIR by design" data (not just include FAIR-ified data).
- Fostering interdisciplinary collaboration in an interconnected research landscape coordinating with other initiatives for an inclusive EOSC.

Improve communication and outreach:

- Identifying topics for further discussion and services needed for cutting-edge research.
- Increasing familiarity of EOSC with stakeholders.
- Outreaching to researchers and their communities through multipliers and testimonials to strengthen support and raise awareness of EOSC initiatives.
- Establishing communication channels to involve researchers in co-creating EOSC.

3.1 Types of researcher engagement activities

In the dynamic realm of EOSC and Open Science, an array of researcher engagement activities has emerged as vital conduits for collaboration, innovation, and knowledge dissemination. These activities encompass a spectrum of approaches, each with distinct advantages, challenges, goals, and drawbacks.

To categorise the diverse range of found activities these groupings were developed based on the nature and objectives of the activities. Group 1 focuses on funding-related activities, aiming to incentivize stakeholder adoption by providing financial support. Group 2 revolves around advocacy, involving the engagement of influential individuals and advocating for EOSC at various levels. Group 3 is centred on content creation, utilising diverse mediums. Group 4 centres on collaboration and consultation among stakeholders. Group 5 encompasses in-person and online events, to facilitate knowledge exchange and interaction. Group 6 pertains to communication materials, delivering concise information through certain mediums. Lastly, Group 7 involves data collection activities, aiming to gather feedback and insights directly from stakeholders.

These groupings provide a comprehensive approach to researcher engagement, catering to different preferences and needs while promoting effective participation in EOSC-related initiatives.

Group 1: Funding

| Activity | Goals / Benefits | Drawbacks |
|-------------------|--|--|
| Adoption Grants | Provide financial support to encourage stakeholders to adopt | Potential challenges with accountability and ensuring effective adoption |
| Mini-Grants | Offer smaller-scale funding opportunities for stakeholders | Limited funding amounts may not be sufficient for larger-scale projects |
| Awards and Prizes | Recognize and promote Open Science contributions | Selection process and potential biases in awarding prizes, perception of competition and limited resources |

Table 1 – Researcher engagement activities via funding

Group 2: Advocacy

| Activity | Goals / Benefits | Drawbacks |
|------------------------------|---|--|
| Ambassador Programs | Engage influential individuals to promote and advocate for EOSC | Effectiveness of ambassadors may vary, sustaining engagement and impact can be challenging |
| Domain Ambassadors | Network of representatives or advocates for specific fields | Limited availability of domain ambassadors, restricts scope and reach of advocacy efforts |
| Researcher Advocacy Programs | Create a network, promote FAIR practices | Resistance or lack of interest from researchers, challenges in reaching a diverse range of researchers |
| Open Science Policy Advocacy | Advise policy decisions and support Open Science initiatives | Potential resistance from policymakers or stakeholders, requires dedicated efforts to navigate policy-making processes |

Table 2 – Researcher engagement activities via advocacy

Group 3: Content Creation

| Activity | Goals / Benefits | Drawbacks |
|---------------------------------|--|---|
| Blog Posts | Share insights, updates, and thought leadership with stakeholders | Requires consistent content creation and maintenance, reaching a diverse audience may pose challenges |
| News Articles | Raise awareness among a broader audience | Potential challenges in attracting attention and generating interest in specific topics or initiatives |
| Podcast | Offer an engaging medium for content and discussions | Technical challenges with production, distribution, and audience reach, competition in the podcasting landscape |
| Use Cases and Case Studies | Highlight real-world examples of researchers utilising EOSC services | Challenges in collecting and documenting use case studies, obtaining participation and consent from researchers |
| Music Playlists, „Image-Videos“ | Create a positive and immersive experience for stakeholders | Limited reach and impact, potential challenges sustaining audience interest |

Table 3 – Researcher engagement activities via content creation

Group 4: Collaboration/Consultation

| Activity | Goals / Benefits | Drawbacks |
|--|---|--|
| Co-Creation | Involve stakeholders in the design and development process of e.g., services in the context of Open Science | Requires effective coordination and collaboration among diverse stakeholders, potential challenges in consensus-building and decision-making |
| Expert Advisory Board (institutional level, project level) | Provide valuable insights and guidance based on expertise | Limited availability of experts, potential challenges in maintaining engagement and achieving consensus |
| Hackathons, Data Sprints | Promote innovation and problem-solving through collaboration | Time-constrained format limits in-depth exploration and analysis, may require specialised technical skills for participation |
| Workshops and Trainings | Facilitate interactive discussions and problem-solving | Time and resource-intensive to organise and conduct, potential challenges in ensuring broad participation and active engagement |
| Collaboration Events | Organise networking events and workshops to foster collaboration | Time and resource-intensive to organise and conduct, limited availability and capacity for physical events |
| Mentorship Programs | Provide guidance and support for researchers in Open Science | Requires commitment and time from mentors and mentees, limited availability of mentors with Open Science expertise |
| Workspaces | Facilitate real-time collaboration and sharing of research outputs | Privacy and security concerns with sharing sensitive data, may require technical infrastructure and maintenance |

Table 4 – Researcher engagement activities via collaboration/consultation

Group 5: In-person/Online Events

| Activity | Goals / Benefits | Drawbacks |
|-------------------------------|---|--|
| Conferences | Provide a platform for knowledge sharing and networking | Resource-intensive to organise, potential limitations in physical space or technical challenges in conducting online conferences |
| Networking Events | Facilitate relationship building and collaborations | Requires effective coordination and planning, limited availability, and capacity for physical events |
| Webinars | Disseminate information and engage stakeholders remotely | Limited opportunity for interactive discussions, technical challenges with connectivity and audio quality |
| Events with Service Providers | Connect researchers with service providers and provide insights | Challenges in coordinating schedules with service providers, limited opportunity for interactive discussions and Q&A |
| Summer Schools | Offer focused educational programs for stakeholders | Resource-intensive to organise, limited availability and capacity, potential challenges in ensuring broad participation and impact |

Table 5 – Researcher engagement activities via in-person/online events

Group 6: Communication Materials

| Activity | Goals / Benefits | Drawbacks |
|---|---|---|
| One-Pagers, Flyers, Info Sheets | Provide concise and visually appealing information to stakeholders | Requires ongoing design and content creation, potential challenges in reaching a diverse audience |
| Template PowerPoint Presentations | Offer a consistent and professional format for presentations | Limited customization options, potential challenges in addressing specific stakeholder needs |
| Posters | Effectively communicate key messages and attract attention in public spaces | Requires design expertise and resources, limited visibility and reach, potential challenges in capturing attention |
| Presentations (live, online, recorded), Explanatory Video | Equip researchers with knowledge and skills needed to implement Open Science practices effectively. | Requires effective delivery and engaging content, potential challenges in attracting and sustaining audience interest |

Table 6 – Researcher engagement activities via communication materials

Group 7: Data Collection

| Activity | Goals / Benefits | Drawbacks |
|------------------------|---|---|
| Surveys | Gather feedback from many stakeholders | Potential low response rate from stakeholders, survey fatigue, challenges in data analysis and interpretation |
| Qualitative Interviews | Gather deeper insights and feedback, address researchers' needs | Requires significant resources and effort to design, conduct, and analyse, challenges of finding interviewees |

Table 7 – Researcher engagement activities via data collection

3.2 Comparison of strategies in detail

Below is a more detailed analysis for researcher engagement activities in initiatives related to Open Science and EOSC. The following tables summarise the findings collected through the desk research and input from interviewed project members. This analysis highlights strategies that are unlikely to be effective and approaches that have proven to be more successful. A comprehensive breakdown of each aspect (column: "Reasoning") provides a deeper understanding of the various approaches and considerations involved.

The analysis underscores the importance of transparent communication, recognition, and tailored strategies in cultivating researcher engagement and, consequently, shaping the EOSC framework successfully. It also emphasises the significance of providing tangible information and concrete services instead of relying on abstract concepts and empty promises. Clear language and substantive offerings are crucial for engaging researchers and gaining their trust. Furthermore, emphasising interdisciplinary collaboration, establishing a long-term vision, and involving researchers in the decision-making process are essential to sustain engagement.

By implementing these approaches more, initiatives can effectively engage researchers and foster a collaborative and thriving community.

Strategies focusing on clarity and tangibility

| Strategies that are unlikely to work effectively | Reasoning | Approaches that could be more successful |
|--|--|--|
| Abstract concepts | Researchers prefer tangible information and concrete services that they can benefit from in their day-to-day research. Answering their questions with metaphors and abstract terms is not helpful. | A genuine approach to ask about needs and wants fosters a sense of ownership and engagement, and ultimately enhances its value to the research community. |
| Promises without concrete services | Researchers are sceptical of promises of a better (academic) world without knowing why or how EOSC will improve their research. It is important to provide concrete services and solutions that address their needs. | Recognise the globalised and interconnected nature of research, emphasising interdisciplinary collaboration and addressing trust in research processes and data. |
| Sales-type marketing and promises without concrete services. | Selling something that does not yet exist or lacks concrete deliverables is challenging. Researchers require substantive offerings that address their specific needs rather than marketing tactics. | Use clear and specific language instead of abstract concepts and metaphors. Provide substantive offerings that address researchers' specific needs |
| Showcase projects with little visible added value | Researchers have seen numerous projects, like "yet another project." It is essential to provide meaningful and distinctive contributions that go beyond standard research and development projects. | Researchers seek innovative and distinct projects that offer substantial benefits. Provide tangible information and concrete services that benefit researchers in their day-to-day work. |
| Lack of tangible benefits for day-to-day research | Researchers seek practical and immediate benefits for their everyday research activities. | Demonstrate how EOSC can directly enhance their research processes and outcomes. |

Table 8 – Researcher engagement strategies focusing on clarity and tangibility

Strategies enabling collaboration

| Strategies that are unlikely to work effectively | Reasoning | Approaches that could be more successful |
|---|--|---|
| Ignoring interdisciplinary research | With research challenges becoming increasingly complex, interdisciplinary collaboration is essential. Neglecting to include interdisciplinary perspectives can hinder effective researcher engagement. | Foster interdisciplinary collaboration and cooperation. |
| Limited opportunities for collaboration and co-creation | Failing to provide platforms and mechanisms for researchers to actively participate, collaborate, and contribute to the development of EOSC can diminish engagement levels. | Provide platforms for active participation and collaboration. |

Table 9 – Researcher engagement strategies enabling collaboration

Strategies embracing researcher participation

| Strategies that are unlikely to work effectively | Reasoning | Approaches that could be more successful |
|---|--|---|
| Exclude researchers from the requirement collection process | Researchers are the primary users and their active involvement in shaping features and functionalities is crucial. | Involve researchers directly to collect immediate requirements. Establish a continuous researcher engagement process through discussion to ensure that EOSC addresses the genuine needs of its primary users. |
| “One-size-fits-all” approach | Neglecting diversity can lead to biased outcomes and limited adoption. | Engaging researchers from diverse disciplines, career stages, and geographic regions is important for obtaining a comprehensive understanding of research needs. |
| Lack of researcher involvement | To actively involve researchers in the co-creation of EOSC, their visions, needs, and requirements must be considered. | Involve researchers in co-creation and decision-making. Diversify communication channels and use effective platforms. |
| Ignoring feedback and input from researchers | Failing to listen to and incorporate the feedback, ideas, and suggestions from researchers can result in lack of acceptance. | Actively listen to and incorporate researcher feedback. |
| Overwhelming researchers with complex technical details | Providing researchers with excessive technical information and jargon without considering their level of understanding can lead to confusion and loss of interest. | Simplify technical information and adapt communication. |
| Lack of recognition and incentives | Neglecting to acknowledge and reward researchers for their contributions, ideas, and active involvement can reduce motivation and hinder sustained engagement. | Recognise and reward researchers for their contributions. |

Table 10 – Researcher engagement strategies embracing researcher participation

Strategies addressing practical needs

| Strategies that are unlikely to work effectively | Reasoning | Approaches that could be more successful |
|--|---|---|
| Lack a structured approach and sustainability | Requiring long-term planning and resource management. | Embrace change and consider the evolving needs of science, society, and research tools and services. |
| Ignore communication gaps | Communication gaps occur when there is a lack of effective information exchange between different stakeholders. | To avoid misunderstandings, missed opportunities, and hindered progress, bridge communication gaps and engage different communities. |
| Adding to the general increased workload | Administrative complexity involving tasks such as calls, review, evaluation, accounting, and payment. | Design streamlined and standardised procedures, create templates and clear guidelines for each step of the process, reducing unnecessary paperwork and approvals. |
| Lack of long-term vision | To ensure EOSC's success, it is crucial to establish a long-term vision and continuously engage researchers in discussions. Focusing solely on immediate needs may limit the potential impact of EOSC. | Establish a long-term vision and engage researchers in discussions about future research environments. |
| Neglecting impact assessment | Ignoring the ethical, legal, technical, and competitiveness risks involved can hinder the development of EOSC. | Understanding the potential risks and benefits associated with research infrastructure evolution is vital. |
| Failure to address trust and data provenance | Trust in science, research processes, data provenance and the deployment of tools like AI, are critical considerations. Neglecting to address these aspects can undermine researchers' trust and hinder engagement efforts. | Build trust in research processes and address data provenance. |
| Lack of transparency and communication | Keeping researchers in the dark about the decision-making processes and outcomes of the engagement activities can lead to distrust and disinterest. | Ensure transparency in decision-making and maintain open communication. |
| Inflexible engagement strategies | Implementing rigid structures and processes that do not adapt to the changing needs and expectations of researchers can lead to disengagement over time. | Adapt engagement strategies based on evolving needs and expectations. |

Table 11 – Researcher engagement strategies addressing practical needs

4. Lessons learned

This summary of lessons learned delves into the intricacies of researcher engagement activities within the realm of Open Science and EOSC. The insights offered here are drawn from both desk research and the perspectives generously shared by project members during interviews.

Over the years, researcher engagement within EOSC has faced a range of challenges. One central issue has been researchers' preference for concrete and tangible offerings over abstract concepts. Researchers are more inclined to engage when they can clearly see how initiatives can directly benefit their daily research activities, rather than being presented with vague promises. Another hurdle is the saturation of communication channels, resulting in information overload, which renders traditional marketing approaches ineffective. Researchers require diverse and efficient communication methods to stay informed and engaged.

Furthermore, fostering interdisciplinary collaboration has proven to be a significant challenge. Neglecting to incorporate perspectives from various fields can impede successful engagement efforts. Additionally, researchers seek practical benefits that can improve their research processes immediately. Demonstrating the direct enhancement EOSC offers to their research can effectively capture their attention. Trust and credibility are paramount in researcher engagement, and sales-like marketing without concrete deliverables can be counterproductive. Researchers require substantive offerings addressing their specific needs, backed by transparent communication. Neglecting the complexity of interdisciplinary research and overlooking long-term visions can also undermine engagement efforts.

To successfully engage researchers, initiatives must embrace diversity and inclusion, incorporate interdisciplinary perspectives, involve researchers in co-creation, and establish effective communication channels. Providing immediate and practical benefits, addressing ethical concerns, and fostering trust through transparent communication are critical. Recognizing researchers' contributions, promoting interdisciplinary collaboration, and adapting strategies to changing needs also play vital roles. Overall, a multifaceted approach is necessary to address the intricate landscape of researcher engagement effectively.

Researchers are inundated with information through conventional dissemination channels. Diverse communication approaches are needed to ensure effective engagement. However, interdisciplinary collaboration is pivotal. With complex research challenges spanning disciplines, the synergy of interdisciplinary perspectives becomes imperative.

The triumph of Open Science and EOSC hinges on adaptability to evolving research paradigms. Involving researchers from diverse backgrounds ensures a comprehensive understanding of their needs, avoiding a "one-size-fits-all" approach. The risks and benefits tied to research infrastructure evolution must be acknowledged, with transparency and ethical use of data at the forefront.



Fostering trust is at the core of engagement. Trust in research processes and data provenance is non-negotiable. Researcher involvement serves as a foundation; their visions and requirements must shape the initiatives within the context of EOSC. Neglecting feedback, overwhelming with technicalities, and lacking transparency can all erode engagement. Recognition and incentives drive sustained engagement, while flexibility and adaptability prevent disengagement over time.

Sustainability requires long-term planning, and an increased workload brings administrative intricacies. The path to EOSC's success through researcher engagement is paved with a deep understanding of these dynamics, strategies that promote collaboration, and a steadfast commitment to navigating challenges for a thriving research ecosystem.

5. Suggested strategies

The proposed strategies outlined below have been derived from a comprehensive consolidation of research findings, including insights obtained through interviews with project members and desk research.

To address the challenges previously described in researcher engagement activities, the following strategies can be implemented:

Strategies for interaction with researchers

- *Involve researchers:* Capture researchers' needs, visions, and requirements to ensure that EOSC aligns with their expectations and effectively addresses their unique challenges.
- *Positive engagement:* Ensure that activities garner attention and positive feedback. A positive reception not only signifies a successful outcome and a success in funding, but also plays a crucial role in building credibility and enthusiasm among researchers.
- *Tangible progress and contributions:* Highlight concrete outcomes to showcase practical achievements. Demonstrating progress and contributions resonate more effectively with researchers, making the initiative's impact more visible.
- *Enable participation:* Acting as an enabler implies creating an environment where participants can actively contribute to EOSC. Provide platforms and opportunities for involvement and make the engagement process more inclusive and dynamic.
- *Focus on practical value:* Instead of relying solely on promotional tactics or abstract high-level plans, emphasise the development and provision of tangible solutions, tools, and resources that researchers can directly apply in their daily tasks. By providing practical benefits, EOSC can establish trust and credibility within the research community.
- *Enhance visibility:* One way to engage researchers is by assisting them in gaining visibility for their research outcomes. Promoting their work through the initiative benefiting researchers and reinforcing their commitment to the engagement efforts.

Strategies for establishing structured frameworks

- *Establish legal processes:* Streamline operations through well-defined legal processes, contracts, payment routines, and accountability checks. Clear guidelines ensure a smooth workflow and foster trust among stakeholders.
- *Create a Vision Strategy Board:* Set up regular structured discussions and events to facilitate dialogue, gather feedback, and foster collaboration. This board offers a platform for input and impact assessment to guide the development of EOSC.
- *Implement an ambassadors' program:* Recruit experts from various disciplines and communities to act as intermediaries and advocates. These ambassadors, trusted by their peers, help bridge communication gaps, promote awareness, and engage their respective communities in the EOSC initiative.

Strategies for navigating complexity

- *Diverse solution exploration:* Implement "test balloons" or pilot initiatives, to explore a broader spectrum of potential solutions. Expanding possibilities widens the solution space and enables the identification of effective approaches that align with researchers' needs.
- *Manage complex situations:* Recognize the diversity of rules and procedures and adapt to them to foster a comprehensive understanding of the situation, contributing to effective researcher engagement.
- *Embrace change:* Adapt to evolving research needs driven by scientific advancements. Proactively assess societal challenges, and the tools and services required to address them.
- *Address risks:* Proactively address the risks and complexities that come with change. Conducting thorough assessments of ethical, legal, technical, and competitiveness risks associated with the transformative potential of EOSC. By mitigating these risks, EOSC can ensure a successful and responsible transition while safeguarding the interests of stakeholders.

6. Conclusion

In the context of Open Science and the development of EOSC, researcher engagement has emerged as a pivotal undertaking. This report provides a comprehensive examination of researcher engagement activities within the landscape of EOSC and Open Science, focusing on their overarching objectives, potential benefits, and associated challenges.

One key aspect that has emerged during the exploration of researcher engagement is its multifaceted nature. Engaging researchers in Open Science encompasses various levels and dimensions, from raising awareness and promoting initiatives to encouraging active usage, collaboration, and contribution. Researchers can engage to stay informed about developments, advocate for Open Science principles, utilise services for their research, actively shape the direction of EOSC through input and feedback, and even become contributors by sharing data and resources. This report delves into these diverse facets of engagement, highlighting the importance of recognizing and addressing the varying needs and motivations of researchers in the context of Open Science. This nuanced approach to researcher engagement aims to create a vibrant and inclusive EOSC ecosystem where researchers are not only aware of the work being conducted but actively participate in the co-creation process.

In the pursuit of effectively involving researchers within the context of EOSC, it's crucial to navigate the complexities of their preferences and needs. Not all strategies are equally successful, and some approaches might even lead to disinterest and disengagement. Researchers seek meaningful connections to their work and lean towards practical benefits that directly impact their daily research endeavours. Promising vague improvements without offering clear solutions, for instance, tends to foster scepticism. Similarly, showcasing projects lacking substantive value for the individual researcher can undermine interest. A "one-size-fits-all" approach neglects the diversity of researchers' backgrounds and requirements, hindering comprehensive engagement. Failure to address trust, data provenance, and interdisciplinary needs also hampers effective researcher involvement. Equally critical is a long-term vision, transcending immediate needs.

As Open Science and the EOSC continue to evolve, researcher engagement remains an ongoing process. With each challenge addressed, each lesson learned, and each individual actively engaged, the future promises a more robust and collaborative research community.

Sources

This is an alphabetical list of 32 EOSC and Open Science related projects. It serves as the foundational basis for the comprehensive analysis of researcher engagement activities. These projects provide valuable insights into various approaches, successes, challenges, and lessons learned in engaging researchers effectively.

H2020 INFRAEOSC Projects

| Acronym | Full Name | Link | Funding Stream | End Date |
|------------------|---|----------------------------------|---------------------------|---------------|
| DICE | Data Infrastructure Capacity for EOSC | DICE-EOSC | H2020-INFRAEOSC-2018-2020 | 30 June 2023 |
| ENVRI-FAIR | ENVironmental Research Infrastructures building Fair services Accessible for society, Innovation and Research | ENVRI-FAIR | H2020-INFRAEOSC-2018-2020 | 30 June 2023 |
| Enhance | Enhancing the EOSC portal and connecting thematic clouds | EOSC Enhance | H2020-INFRAEOSC-2018-2020 | 30 Nov 2021 |
| EOSC Future | EOSC Future | EOSC Future | H2020-INFRAEOSC-2018-2020 | 30 Sept. 2023 |
| EOSC-Nordic | EOSC-Nordic | EOSC-Nordic | H2020-INFRAEOSC-2018-2020 | 30 Nov. 2022 |
| EOSC-Pillar | Coordination and Harmonisation of National Initiatives, Infrastructures and Data Services in Central and Western Europe | EOSC-Pillar | H2020-INFRAEOSC-2018-2020 | 31 Dec. 2022 |
| ExPaNDS | EOSC Photon and Neutron Data Services | expands.eu | H2020-INFRAEOSC-2018-2020 | 28 Feb. 2023 |
| INODE | Intelligent Open Data Exploration | INODE project | H2020-INFRAEOSC-2018-2020 | 30 April 2023 |
| NI4OS Europe | National Initiatives for Open Science in Europe | NI4OS-Europe | H2020-INFRAEOSC-2018-2020 | 28 Feb. 2023 |
| EOSC Secretariat | Support and management of the EOSC Secretariat supporting the EOSC Governance | EOSC Secretariat | H2020-INFRAEOSC-2018-2020 | 31 Oct. 2021 |
| OpenAIRE-Nexus | OpenAIRE-Nexus Scholarly Communication Services for EOSC users | OpenAIRE Nexus | H2020-INFRAEOSC-2018-2020 | 30 June 2023 |
| SSHOC | Social Sciences & Humanities Open Cloud | SSHOC | H2020-INFRAEOSC-2018-2020 | 30 April 2022 |

HE INFRAEOSC Projects

| Acronym | Full Name | Link | Funding Stream | End Date |
|---------------------|--|------------------------------------|----------------------------|---------------|
| Blue-Cloud 2026 | A federated European FAIR and Open Research Ecosystem for oceans, seas, coastal and inland waters | Blue-Cloud 2026 | HORIZON-INFRA-2022-EOSC-01 | 31 Dec. 2026 |
| e-IRGSP7 | e-Infrastructure Reflection Group Support Programme 7 | e-IRG | HORIZON-INFRA-2021-EOSC-01 | 30 Sept. 2023 |
| EuroScience Gateway | Leveraging the European compute infrastructures for data-intensive research guided by FAIR principles | EuroScienceGateway | HORIZON-INFRA-2021-EOSC-01 | 31 Aug. 2025 |
| FAIR-IMPACT | Expanding FAIR Solutions across EOSC | FAIR-IMPACT | HORIZON-INFRA-2021-EOSC-01 | 31 May 2025 |
| FAIRCORE4EOSC | Core Components Supporting a FAIR EOSC | FAIRCORE4EOSC | HORIZON-INFRA-2021-EOSC-01 | 31 May 2025 |
| FAIRsFAIR | Fostering FAIR Data Practices in Europe | FAIRsFAIR | H2020-INFRAEOSC-2018-2020 | 28 Feb. 2023 |
| OCRE | Access to Commercial Services Through the EOSC-hub | OCRE project | H2020-INFRAEOSC-2018-2020 | 31 Dec. 2022 |
| RDA TIGER | Research Data Alliance facilitation of Targeted International working Groups for EOSC-related Research solutions | RDA TIGER | HORIZON-INFRA-2022-EOSC-01 | 31 Dec. 2025 |
| Skills4EOSC | Skills for the European Open Science Commons: Creating a Training Ecosystem for Open and FAIR Science | Skills4EOSC | HORIZON-INFRA-2022-EOSC-01 | 31 Aug. 2025 |

Other Projects

| Acronym | Full Name | Link | Funding Stream | End Date |
|----------------|---|---|---|---------------|
| ARCHIVER | Archiving and Preservation for Research Environments | Archiver | H2020-ICT-2018-20 | 30 June 2022 |
| BE OPEN | European forum and oBsErvatory for OPEN science in transport | BE OPEN | H2020-MG-2018-2019-2020 | 30 June 2021 |
| Blue-Cloud | Piloting innovative services for Marine Research & the Blue Economy | Blue-Cloud | H2020-BG-2018-2020 | 31 March 2023 |
| ENLIGHT | European university Network to promote equitable quality of Life, sustainability, and Global engagement through Higher education Transformation | ENLIGHT | Initiative of ten European countries | active |
| CINECA | Common Infrastructure for National Cohorts in Europe, Canada, and Africa | CINECA | H2020-SC1-BHC-2018-2020 | 30 June 2023 |
| EOSC-hub | Integrating and managing services for the European Open Science Cloud | EOSC Hub | H2020-EINFRA-2016-2017 | 31 March 2021 |
| HRB | Horizon Results Booster | Horizon Results Booster | Initiative of the European Commission | active |
| Open Access | Open Access Belgium | Open Access Belgium | Collaboration between the Open Science teams of the Belgian universities. | active |
| EOSCpilot | The European Open Science Cloud for Research Pilot Project | EOSC Pilot | H2020-INFRADEV-2016-2017 | 31 May 2019 |
| RDA Europe 4.0 | The European plug-in to the global Research Data Alliance | Research Data Alliance | H2020-INFRADEV-2016-2017 | 30 Sept. 2020 |
| WorldFAIR | Global cooperation on FAIR data policy and practice | The WorldFAIR Project | HORIZON-WIDERA-2021-ERA-01 | 31 May 2024 |

Annex

Interview Guideline

The interview guideline provides transparency and insight into the interview process. By employing methodical approaches, we ensured that our research incorporated diverse perspectives while maintaining rigour and consistency in data collection and analysis.

To the Interviewees:

I would very much appreciate it if you could share your experiences and perspectives on the topic of researcher engagement in the context of EOSC and Open Science:

1. In which Open Science and EOSC projects have you participated or are you involved?
2. In which of these projects were there activities to engage researchers as stakeholders?
3. What are the distinctions and nuances between outreach, promotion, dissemination, and engagement in the context of these projects?
4. What worked and what didn't? Please give me examples of activities.
5. Do you know of other projects that have done such activities?
6. Who should I talk to about this issue?

These supplementary questions provide more comprehensive insights into the topic of researcher engagement activities:

- Can you describe any challenges or obstacles you encountered when trying to engage researchers in Open Science or EOSC initiatives?
- Were there specific strategies or approaches that proved particularly effective in getting researchers involved and enthusiastic about Open Science and EOSC?
- What indicators do you believe are valuable for assessing the success of researcher engagement activities in Open Science and EOSC projects?
- Have you observed any cultural or institutional barriers that hinder researcher engagement in Open Science and EOSC? If so, how have these barriers been addressed?
- Are there any emerging trends or best practices in researcher engagement within the EOSC and Open Science landscape that you find noteworthy?

- Can you share examples of how feedback from researchers has influenced the direction or outcomes of EOSC and Open Science projects or initiatives?
- What are your thoughts on the role of technology in facilitating researcher engagement in EOSC and Open Science?
- In your experience, how important is it to tailor engagement strategies to the specific needs and interests of different research communities or disciplines?
- Have you encountered any ethical or privacy considerations when engaging researchers in Open Science activities, and how were these addressed?
- Are there any lessons learned or key takeaways from your engagement efforts that you believe would be valuable for other EOSC and Open Science projects to consider?