Marie Curie Alumni Association

Newsletter

Open Science in its many forms

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Image by MidJourney, edited by Fabrizio Martina

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Message from the Board

Dear MCAA Members,

The MCAA Board welcomes this special issue of the MCAA Newsletter on "**Open Science in its many forms**" and would like to highlight our strong commitment to both Open Science and the Research Assessment Reform, which go hand in hand. Firstly, we would like to mention the EU-funded projects we are involved in this area: the OPUS project, which helps reform the assessment of research towards a system that incentivizes researchers to practice Open Science, and CoARA Boost, a project that strengthens the operational capacity of the Coalition for Advancing Research Assessment (CoARA).

Furthermore, we have a flagship tool to support the implementation of some of the Open Science and the Research Assessment reform principles, namely the Peer Exchange Platform for Narrative-style CVs (PEP-CV), With the support of its community manager, Pooja Khurana, the membership keeps growing, serving a large research community worldwide - just below 500 members at the moment - including MCAA members. Last October, the MCAA organized its first mentor-mentee webinar, and the PEP-CV platform was highlighted in this Nature Careers article focused on the role of our tool in supporting researchers navigating the development of their own narrative CVs.

Beyond our latest updates related to Open Science, other activities have kept the MCAA Board busy lately. Over the past few months, a lot of activity has been going on at the European Commission level with the publication of the Letta and Draghi reports. Both documents highlight the role of R&I activities in strengthening the EU's competitiveness, but both fail to recognize the importance of the MSCA programme. Consequently, the MCAA and other organizations released a statement titled "We need much more MSCA!" which highlights the crucial role of the MSCA, the need to recognize its contributions to driving economic growth and securing Europe's competitive edge, and for an increased budget and commitment to preserve its bottom-up approach. More recently, the Commission Expert Group on the Interim Evaluation of Horizon Europe presented its report "Align, act, accelerate. Research, technology and innovation to boost European competitiveness" highlighting the role of the MSCA programme in boosting European competitiveness. We welcomed the publication of this report and we published our Response on the Horizon Europe Interim Evaluation Report, together with Eurodoc. In preparation for the next EU framework programme for research and innovation, the MCAA is committed to continue advocating for the role of the MSCA in the EU research and innovation ecosystem.

Additionally, the ERA Policy Agenda for 2025-2027 is currently under development, and the MCAA has submitted feedback on the proposed new actions. Similarly to current actions, the MCAA expects a strong commitment of the ERA Forum to Open Science and would continue to support these types of actions, among others.

The past few months have also been busy with high-level representation activities. In October 2024, the MCAA Chair, Gian Maria Greco, and the Executive Director,

Image by Midjourney, prompt by Fabrizio Martina

Mostafa Moonir Shawrav, had a series of highly productive meetings with several stakeholders, including the MSCA Unit, Science Europe, Pracsis, and Initiative for Science in Europe. On 17 October 2024, Gian Maria also attended the invitation-only "Workshop on National activities supporting research assessment reforms" organised by the European Commission DG for Research and Innovation (DG RTD) in Brussels (Belgium). On 4-5 November 2024, MCAA Vice-Chair Corinne Portioli participated in the workshop on "Attractive Careers in Research: The expectations & roles of different stakeholder groups" organized by Science Europe in Brussels (Belgium). A few days later, Board member Ornela Bardhi shared her experience as an MSCA doctoral researcher and gave a presentation about the MCAA at the online event co-organized by Policy Answers and the MSCAdvocacy project, which focused on MSCA success stories from the Western Balkans. On 8

November, the European Commission's DG RTD invited all organizations and individuals that had submitted feedback on the "Living guidelines on the use of Generative Artificial Intelligence (AI) in research" to a workshop where updates to the guidelines were discussed. Relevant to the theme of this issue of the MCAA Newsletter were the recommendations for open and transparent use of AI in research by researchers, research institutions, and funding institutions. Gian Maria and Ornela represented the MCAA at the workshop.

We were also present at the World Science Forum, which took place in Budapest (Hungary) on 20-23 November. We co-organized two side events in collaboration with Eurodoc, ICoRSA, and YAE. The first was a panel discussion held on 19 November which focused on "Engaging Researchers and Researcher Associations in Science Advice, Diplomacy and Science for Peace", with

Mostafa as moderator and Board Member Irene Castellano as a speaker. The discussion focused on ways researchers and researcher associations can effectively engage in science diplomacy and science for peace at national and international levels. The second panel discussion took place on 20 November and was devoted to "How to make academic careers attractive and sustainable", with our Chair, Gian Maria, as one of the speakers.

Our Board member Hakim Ferria represented our association at two separate events: Coordinators' Info Day (MSCA DN) on 12 November in Brussels (Belgium) and at the first in-person event of the AUFRANDE (COFUND) project in Lyon (France) on 20 November. Last but not least, Gian Maria, Corinne, Hakim, and Gledson Emidio, our community officer, took part in the 8th Meeting of the Horizon Europe MSCA National Contact Points (NCP) event in Brussels (Belgium) on 27 November. This event was a great opportunity to highlight good examples and best practices of synergy & cooperation between the MCAA and the NCPs.

Finally, the Board is currently busy organizing the content of the **MCAA Annual Conference 2025** that will be held in **Krakow (Poland) on 21-22 March 2025**, with satellite events taking place on 19-20 March.

We hope to see you all there soon!

In the meantime, enjoy your reading!

On behalf of the MCAA Board,

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Image by Fabrizio Martina

Research and innovation in a *rapidly evolving world*

MCAA ANNUAL CONFERENCE & GENERAL ASSEMBLY

KRAKOW POLAND

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Editorial

Embracing Open Science: Marie Curie Alumni Leading the Way in Research Accessibility and Impact

Dear MCAA colleagues/members,

Beneficiaries of the Marie Skłodowska-Curie Actions (MSCA) during Horizon Europe and Horizon 2020. During these two research funding programmes, the EU and the MSCA have been strongly promoting Open Science and Responsible Research and Innovation. Much of the focus was initially on Open Access publication but this then led to an increased focus on how to make research accessible to all audiences in ways that can lead to increased real-world impact.

This special newsletter issue explores how MSCA Alumni engage with Open Science. In this introductory article, we will cover key elements of open science, practical benefits of adopting open science practices and challenges, as well as policy developments and support, illustrated by examples from authors' stories.

Understanding Open Science in its many forms

Open Science represents a paradigm shift in how research is conducted, disseminated, and utilized. It emphasizes transparency, collaboration, and accessibility, allowing broader participation and fostering innovation.

In 2021 UNESCO issued a first international recommendation after conducting a global consultation

"Central to the Recommendation is a set of pillars holding up a global open science system: open scientific knowledge, open science infrastructures, open engagement of societal actors and open dialogue with other knowledge systems, in combination with science communication." (from Recommendation on Open Science. UNESCO General Conference, November 2021. Paris: UNESCO Publishing.)

Figure 1 shows these elements, commonly associated with science and research.

Open Access: ensure research outputs are freely available to everyone without subscription barriers.

Open Data: share research data openly, free to access, re-use and modify and in formats that adhere to FAIR (Findable, Accessible, Interoperable, Reusable) principles, enabling others to validate and build upon findings.

Open Methodology: make research workflows, protocols, lab notebooks, and software openly available to enhance reproducibility.
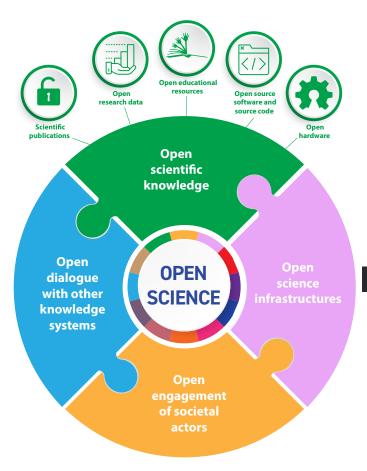
Figure 1. From Recommendation on Open Science. UNESCO General Conference, November 2021. Paris: UNESCO Publishing.

Open Source software: allows free access to distribution of software and access to the source code

Open Educational Resources: develop and share learning materials and tools to support knowledge dissemination.

Open collaboration and citizen science encourage the active involvement of the public in the research process in the form of citizen science projects, whether through data collection, analysis, or dissemination.

Open Infrastructure: development of tools, platforms, and networks that support Open Science practices (open repository like arXiv for preprints, data sharing platforms like OSF and FigShare)

Open Hardware: design and sharing of physical objects, tools, or devices (e.g., Lab equipment, 3D printing models)… further making available for modification and reuse.

Open Evaluation: transparent assessment of research outputs, including grants, proposals, or projects.

Open Peer Review: opening up the peer review of journal articles.

Practical benefits of Open Science

Open Science allows publicly-funded research to maximise its impact and transfer into real-world impact by making the outputs of research open for use and study. Openness reduces barriers to knowledge transfer. Maria Lorena Falco's contribution radiates enthusiasm about articles available through Open Access. Another contributor, Natalia Mishyna proves how publishing Open Access boosted the visibility of her research, increased citations and connected her expertise with policymakers.

Openness also means that duplication of research can be avoided, so that research funding can be better used for more novel topics. Open Science, as highlighted during the COVID-19 pandemic, leads to more rapid scientific progress. This in turn leads to better use of research funding and quicker commercialisation of research.

Openness leads to increased reproducibility of research results. Open access to research data, protocols, code and other details of experimental design, facilitates verification of research results, greater transparency and increased public trust in science. Open science practices prove that research is not purely academic endeavour but a force for public good.

Newsletter contribution by Linda Belkessa highlights how Open Data fuels the future

of urban mobility, making cities greener and more connected how real-time data sharing for urban mobility improvements. In another article, Kannan Govindaraj gives an account of how impactful communication of science to the general public can be, through his story of writing in the local language newspaper in India.

MCAA is an association whose members have benefitted from EU research funding in the Marie Sklodowska-Curie Actions. Nevertheless, MCAA members come from almost all countries globally and many choose to work outside the EU after the end of their fellowship. Open Science aims to make the fruits of research accessible to an audience worldwide regardless of the differences of funding between research ecosystems in the Global North and Global South.

An excellent example of how Open Science can produce practical real-world impact is the work of Eugenio Otal, an Assistant Professor at Shinshu University in Japan, to help secure the safety of drinking water in rural Africa by making the design of his low-cost Arduino-based fluoride sensor available as an Open Hardware design. Openness accelerates the uptake of research results globally and leads to real-world societal, economic, health and environmental impacts.

Furthermore, Danielle Marie Agnello shares how she was encouraged to create a global collaboration platform connecting researchers across 19 countries. "What began as an open-access [MSCA] requirement quickly turned into an opportunity to create something valuable", she emphasizes.

What could stay in the way of adopting Open Science by researchers?

Despite its advantages, Open Science faces several obstacles that researchers must navigate, such as technological and logistical barriers, cultural resistance, funding constraints, ethical and legal concerns, and recognition and career impact.

Less commonly discussed, adoption of Open Science practices can impact researchers' mental health, adding pressures and vulnerabilities. These challenges are sometimes specific to Early Career Stage (ECR) and established researchers.

...for ECRs:

- **Career progression and metrics**: traditional academic metrics often overlook contributions like data sharing or preprints, leading to anxiety about career advancement.
- **Resource constraints**: limited funding for Open Access publishing fees (APC), data duration costs and data management tools can be challenging for most researchers.
- **Fear of criticism and credibility concerns**: public sharing of data and preprints invites scrutiny, fear of being scooped or not being taken seriously by peers, leading to anxiety and can amplify perfectionist tendencies, causing stress.
- **Limited support**: advisors or institutions may not prioritize Open Science, and such lack of support and guidance may lead ECRs to manifest feelings of isolation and disconnection.

... for established researchers:

- **Stress from cultural resistance**: long-standing practices and scepticism can hinder the willingness to adopt Open Science and slow its progress, and adapting to Open Science after years of traditional methods can be frustrating.
- **Increased performance pressure**: balancing traditional metrics and Open Science contributions can be overwhelming, and balancing new practices with existing responsibilities can lead to burnout.
- **Public accountancy and risk of reputation**: sharing data openly invites scrutiny, raising

concerns about public criticism, and thus fear of criticism of mistakes may deter participation.

- **Infrastructural barriers**: gaps in resources and support for Open Science workflow.
- **Complex collaborations and conflict with colleagues**: coordinating openness within multidisciplinary teams can be challenging, often diverging views on Open Science within teams can lead to tension.

..shared challenges:

- **Ethical and legal concerns**: issues around data privacy, intellectual property, and misinterpretation of openly shared data create uncertainties and frustration.
- **Misaligned incentives and career impact**: reward systems & evaluation metrics often favor traditional publishing over transparency and contributions to Open Science, creating tensions for researchers
- **Imposter syndrome due to lack of training**: (i) learning new tools and platforms requires time and training (ii) maintaining data repositories and ensuring FAIR compliance can be resource-intensive. Traditional education systems don't provide exposure to tools and workflows essential for Open Science, and lack of exposure to them can amplify self-doubt.
- **Perceived trade-offs**: balancing openness with competitive pressures in academia requires additional time disruption work-life balance and can lead to exhaustion/burnout.

Navigating institutional and systemic barriers

Publishing practices

The uptake of Open Science is largely challenged by the inertia of research culture to change through the interests of stakeholders to preserve the previous system. Journal publishing has been an extremely lucrative system and the leading publishing houses and journals have been forced to transition to an alternative business model by moving from journal subscriptions to a model based on article processing charges. This is complicated by different subsidies for libraries and researchers in different countries in Europe and globally. The adoption of Open Access publishing is still not completed but has already led to a fundamental change to the academic publishing business and increased access to scientific knowledge.

Implementation challenges and initiatives

Speaking of the Open Data pillar, Marianna Chimienti shares reflection on the evolution of open science practices in the ecology field and importance of proper infrastructures. On other hand, Irène Arrata shares insights from her challenging experience as a project manager implementing FAIR data principles and a Data Management Plan in a chemistry consortium.

Daniela Saderi describes the work of PREreview to democratize scholarly communication, to make peer review more transparent and equitable, an Open Peer Review pillar. Paola Masuzzo and Ivo Grigorov, on other hand, discuss the controversies of publishing research proposal open (yes, Open Proposals), with tips on strategic implementation of this practice.

Many researchers report that a very practical barrier to the uptake of Open Science is the lack of support through funding and training to prepare them to embrace Open Science. As MSCA fellow Christina Makoundou asserts in her story - "Open Science should be the standard, not a privilege reserved for those with specific funding or resources". Nataša Jakominić Marot describes how the participation of the University of Rijeka in the OPUS project has led to the provision of training and educational resources that support academics to practice Open Science. Shanmugapriya Periyannan shares an inspiring story of learning more about diverse Open Science pillars in a global virtual training that was funded within a framework of NASA TOPS programme.

Research assessment reform

A major challenge to the uptake of Open Science practices is that research assessment by research funders and academic hiring committees have derived insight into researcher performance through metrics related to peer-reviewed publications, primarily journal impact factor and h-index. These metrics have granted legitimacy to funding and hiring decisions and ostensibly allowed institutions to take decisions that avoided conflicts of interest. Nevertheless, these metrics have many limitations. Citation metrics disadvantage early-career researchers, who have developed genuinely novel research, but have not had time to acquire a high number of citations. Metrics lead some researchers to try to game the system by prioritising quality over quantity. For instance, it encourages salami slicing of research into the "least-publishable unit". Using journal impact factor to assess researchers uses a measure of prestige as assessment rather than the actual content of their own research.

The emergence of Open Science in Europe has led to a movement to reform research assessment, so that best practices can be

Image by MidJourney, prompt by Fabrizio Martina

developed that facilitate responsible research assessment that incentivises the uptake of Open Science practices. Without reform of research assessment, many early career researchers might be reluctant to prioritise open science practices that do not contribute to their academic career development. The MCAA has represented the interests of its members through being an active advocate for reform of research assessment and is involved in many initiatives including CoARA, PEP-CV and the OPUS project.

From policy to practice and back

Research funders have incentivized the uptake of Open Science by making Open Access and Research Data Management requirements for acquiring and managing research funding. In this Newsletter, Alina Irimia from the largest research funder in Romania UEFISCDI, describes how they are shaping the uptake of Open Science at a national level.

Researcher-led initiatives have already contributed to the uptake of Open Science practices. The MCAA, Eurodoc and the Young Academy of Europe joined together in 2019 to respond to the publication of the Open Access initiative Plan S.

Former researchers, now Policy experts James Morris (Science Europe) and Annelies Van de Ven (MSCA) independently note the broadening of Open Science beyond the traditional Open Access and Open Data to emerging elements like open research methods or public engagement and emphasize that open science requirements should be beneficial to researchers rather than burdening, while ensuring effective monitoring by administrators.

Moving together

This special issue brings together diverse voices from researchers practising open science, educators, research administrators and policymakers. It highlights the wide spectrum of Open Science practices that MCAA members have built into their research. It shows how embracing Open Science can increase reproducibility, democratise access to research results, accelerate scientific progress, facilitate real-world impact, increase public trust in science and enhance research collaboration globally.

To continue moving together, Theodota Lagiuri and the MCAA Policy Working Group welcome your contributions to the Thematic Group on Open Science Policy, while MCAA regional chapters and Working Groups offer opportunities to share perspectives and solutions from your specific contexts.

Let us embrace this challenge and opportunity to create a lasting impact. By working together and supporting one another in our Open Science movement, we can achieve a future where Open Science becomes the standard way of doing science benefiting researchers, the research ecosystem and society at large.

And for this, we would like to thank all authors for their contribution to this initiative and the entire MCAA Newsletter team for their assistance.

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Special Issue
Open Science in its many forms

Photo by Stanislavovna

From Open Access to real-world impact: How open science empowered my role in rebuilding Ukraine

Bionote

Natalia Mishyna is a researcher at the SAGE laboratory of the University of Strasbourg, France. She is currently a Marie Skłodowska-Curie Actions (MSCA) MSCA4Ukraine fellow (2023-2025), diligently working on her research project entitled "The Role of Local Authorities in Implementing European Court of Human Rights Judgments." In addition to her research, Natalia is a Professor in the Constitutional Law Department at the National University 'Odessa Academy of Law', Ukraine. With over 25 years of experience in comparative research on municipal law and human rights, she is deeply passionate about translating Ukrainian legal and cultural realities to international audiences.

Discover how embracing Open Access has elevated my research from national acclaim to international prominence, enabling collaborations with top global institutions like the Council of Europe. Learn how this newfound visibility is not just enhancing my academic journey but also playing a pivotal role in the rebuilding of Ukraine.

Is Open Access worth your time and attention?

For me, the answer is a resounding yes.

Open Access means that research, including journal articles and books, is freely available online to anyone, removing barriers to

knowledge and fostering inclusivity in academia. The Marie Skłodowska-Curie Actions Fellowship (MSCA4Ukraine) influenced my decision to adopt the Open Access approach.

Over the past year and a half, I have taken every opportunity to publish my research in open-access journals, making it accessible to a broader audience. After six months, I started to see the first positive results, and now I can truly say that Open Access has transformed my research career.

The change feels like a clear 'before' and 'after' moment.

Enhancing visibility and impact through Open Access

I have studied and researched in several countries - including the UK, USA, Hungary, and France - but I had not fully explored the possibilities of Open Access until I was honored to receive the Marie Skłodowska-Curie Actions Fellowship (MSCA4Ukraine) in 2023.

Before using Open Access, I had published over 200 works on municipal law and human rights in various formats. My textbooks were the most cited. Google Scholar shows that my most popular textbook, 'Comparative Constitutional Law', has been cited over 1,600 times since 2015. However, my academic articles remained virtually invisible. My top journal article from 2018, dedicated to the strategic development of Ukrainian municipal law according to European standards, has only 41 citations - a big difference from the textbook.

For comparison, according to Google Scholar, my two top journal articles from 2023, published with Open Access, have already been cited 24 and 23 times, respectively. These articles cover similar topics to the 2018

publication—municipal law and human rights, specifically the role of local and regional authorities in implementing European Court of Human Rights judgments. This significant increase in citations shows how Open Access can greatly increase the visibility of academic articles, enabling more researchers to engage with and build on my work.

Expanding research impact through Open Access and global collaboration

I have researched local government law and human rights for over 25 years. Initially, without a clear dissemination strategy, the impact of my work was limited to national academic journals and conferences. I had not used professional networks such as LinkedIn to share my research or consider how to engage a wider audience. As a result, I did not fully realize the potential of my work to benefit the wider international academic community.

Embracing Open Access has been instrumental in increasing the visibility of my research by making it freely available. However, through a combination of Open Access and a more strategic approach to dissemination — including using professional networks, collaborating with international colleagues, and actively participating in global conferences — I have significantly expanded my reach. This strategy has helped me to build a robust network of international collaborators, with partnerships now spanning countries such as France, Germany, Norway, Sweden, Spain, and Belgium. Together, these efforts have extended the reach and impact of my work, confirming its relevance and value on a global scale.

Reaching out beyond academia: connecting with the Council of Europe

My research has long been relevant to policymakers, local officials, and NGOs. Still,

due to limited accessibility outside Ukraine, I missed important opportunities to engage with those who could apply for my findings.

Open Access changed that. By sharing my work more widely, I began receiving numerous invitations to speak at conferences and workshops for diverse audiences. For example, in 2024, I had the honor of presenting Ukraine's experiences and needs to the Group of Independent Experts on the European Charter of Local Self-Government at the Council of Europe, strengthening my relationship with the Council.

For my MSCA4Ukraine project, I conducted in-depth interviews on human rights issues at the local level and explored practical implications for Ukraine's post-war reconstruction. Open Access amplified this research, bringing my expertise in local governance and qualitative research to a broader audience. As a result, the Council of

Europe invited me to provide expert input on strategies to address Ukraine's urgent needs, including rebuilding infrastructure, assisting displaced populations, and restoring local governance structures.

My work now focuses on policy recommendations for sustainable development and frameworks that empower local communities to rebuild with resilience and a commitment to human rights. Open Access has been instrumental in broadening my impact and creating connections that allow my research to support Ukraine's recovery actively.

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The Maison Interuniverstaire des Sciences de l'Homme – Alsace (MISHA), University of Strasbourg, where Natalia works as MSCA4Ukraine fellow.

Image by MISHA, University of Strasbourg

Special Issue
Open Science in its many forms

Learning the hard way: lessons from my attempt to implement Open Data Management in a Chemistry consortium

Implementing Open Science in research consortia can be daunting, as I, the project manager, discovered while tackling data management in a chemistry consortium. From technological barriers to institutional resistance, this piece highlights the challenges and lessons learned in navigating FAIR principles and raises questions about the balance of responsibility between individual researchers versus institutional structures.

Bionote

Irène Arrata is the Project Manager at Inserm's Institute for Translational Medicine and Liver Disease (ITM), University of Strasbourg. After earning a PhD in Chemical Biology from the University of Leeds, she transitioned from academic research to innovation consulting, where she first encountered European projects. In 2020, she returned to academia as a project manager, starting with a Marie Curie ITN project, rediscovering her love for research - this time through research management rather than at the bench. Since 2022, she has been actively involved in the MCAA Research Management Working Group.

Photo by Nevena Slovic

Ensuring the implementation of Open Science within a consortium is one of the many responsibilities of a project manager. This includes developing a Data Management Plan (DMP) aligned with FAIR principles to make data Findable, Accessible, Interoperable, and Reusable. The "**FAIR Guiding Principles**,"

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published in 2016 (Wilkinson et al., 2016), rapidly took momentum (European Commission, 2018). Although I come from a research background, I only discovered them in 2020, when I was hired to manage a MSCA Innovative Training Network (ITN) project in organic chemistry, coordinated by the CNRS in Strasbourg, France. Interestingly, only a few of our 15 principal investigators (PIs) were familiar with this concept, and none had ever applied these principles in practice.

The consortium members unanimously agreed on the value of a robust DMP, forming a dedicated "Open Science" Board soon after the inception of the project. Our strategy aimed to centralize all the project data within a single "Data Archive" managed through an Electronic Lab Notebook (ELN). Each of the 15 PhD students would upload their experiments, including raw data, to the Archive, and non-confidential data would then be selectively exported to a FAIR-compliant public repository. The ELN developer offered free access to our students. The plan was laid; we just had to execute it, but not without a few challenges in the way.

Technological Barriers

Most researchers already used ELNs mandated by their host institutions, which required them to export and re-import their data into our central archive. However, not all ELNs allowed data export in formats other than PDF, and some only permitted manual data exports upon request to the developers. To comply, the researchers needed to invest more time and effort than initially expected and negotiate with their ELN provider to export their experiments; this extra work quickly discouraged them.

After overcoming initial compatibility issues, we faced a new hurdle: each ELN exported data in a different format, requiring custom import modules for each. The ELN developer initially supported us but soon realized

the extent of work required and ceased communication. Ultimately, the export-import procedure was completed for only one team; for the others, we agreed to use, instead, either their institution's platform or Zenodo, thus giving up on a truly centralized approach.

Regulatory Hurdles

Despite researchers' enthusiasm for Open Science, institutional regulations often obstructed the process. Many institutions were wary of third-party ELNs and repositories that had not been internally approved, creating bureaucratic roadblocks. For instance, my institution mandated using only French platforms. When the French government launched its repository in 2022, it became the only approved option, preventing us from contributing to our centralized archive. Considering we still had not managed to make the import procedure work by then, we agreed to switch to this new platform instead.

By then, our consortium's motivation had waned, so we opted for a simpler DMP where each institution followed its own guidelines and outputs gathered on our website.

Persistent Challenges

In the project's final year, researchers from my institution began publishing. By then, I had become the local Open Data "expert" and the only person willing to assist. Through this role, I discovered that researchers rarely accessed their raw data, often requiring special requests to retrieve it. Furthermore, storing such data proved costly and raised environmental concerns. Realizing how few people were aware of – or invested in – data management, I advocated for a robust DMP at the organizational level, starting with my institution. Unfortunately, despite my efforts, I received no support. With an impending job transition, the story pretty much ended here.

Image by Firefly

Researchers bear the responsibility to Open Science.

Outlook and Reflections

Data management in chemistry research remains in its infancy, with best practices – such as guidelines on the types of data worth publishing and appropriate formats – yet to be established. For our consortium members, this project marked their first encounter with FAIR principles. On a positive note, my institute eventually formed a working group to explore data access and storage. However, overall, this experience was rather frustrating.

I am left wondering how much of the responsibility for advancing Open Science should rest on individual researchers and consortia. The tools, best practices, and understanding required for effective FAIR implementation are often lacking. Structural changes at the institutional level are necessary to drive a sustainable shift towards Open Science rather than leaving individuals to navigate – and sometimes resist – entrenched institutional barriers alone.

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Special Issue
Open Science in its many forms

How Open Science transformed my PhD into a global collaboration platform

Photo by Jack Fisher

What if your Open Access requirement turned into something unexpected? Mine started as just another box to tick for my PhD, but it grew into a global collaboration platform that now helps researchers and practitioners in 19 countries design evidence-based co-creation. This collaborative process was mutually beneficial, expanding my network and opening my eyes to the broader impact of my work.

When I started my Marie Curie PhD fellowship, I knew I would need to make my research Open Access. It seemed straightforward: publish, share, and move on. But would Open Access actually make a difference, or was it just another box to tick?

Bionote

Danielle Marie Agnello is dedicated to building healthier, more inclusive communities. As Health CASCADE's methods expert, she specializes in co-creation, participatory research, and workshop facilitation, focusing on sustainable impact. A global health expert with five years at the World Health Organization, she brings expertise in mixed-methods research and international project management to advance health initiatives globally. During her PhD at Glasgow Caledonian University, Danielle systematically sourced and evaluated co-creation methods and developed widely accessed open-source guidance documents and datasets, aiming to address barriers researchers face in implementing evidence-based co-creation.

During my PhD, I studied **co-creation methods**—in simple terms, structured ways to engage communities and stakeholders in developing solutions to complex issues. I reviewed, categorized, and analyzed hundreds of methods from both academic and grey literature. As I began sharing some findings, something unexpected happened. People started reaching out. Researchers, practitioners, and students **were eager for more**. They wanted quick access to this data so they could apply it directly to their projects.

Making a Methods Selector tool

What began as an Open-Access requirement quickly became an opportunity to create something valuable—a tool to help users navigate the often overwhelming world of co-creation. So, what is this tool, and why am I building it?

I would like to say I was immediately excited to put all this data into a tool, but honestly, it was overwhelming. The data was scattered across articles and reports, each offering a different take on what works best in co-creation and formatted in various ways. The deeper I went, the more I realized that other researchers likely faced the same frustration. How do you find the right co-creation method, especially with hundreds of options and limited guidance?

Then the idea hit. Instead of letting these findings sit in a paper or dataset, why not make them available in a user-friendly, searchable format? That's how the **Co-Creation Methods Selector tool came to life**. It now allows users to:

- Browse through almost 700 methods with detailed descriptions
- Filter and search for methods suited to their project needs
- Access insights from both academic and non-academic sources
- Add comments, communicate with others, and contribute new methods

Global reach, real-world feedback

By the time I launched the tool's first prototype in November 2023, recruitment, which could have been challenging, became almost effortless. People were excited to join, and within weeks, I had **54 users from 19 countries**—people from diverse backgrounds who wanted to use the tool to design their co-creation projects.

The tool's live feedback feature allowed users to suggest improvements, from adding intuitive filters to adjusting the interface. Their input has been invaluable, pushing me to think beyond my initial vision. With an enthusiastic user base, the tool's next phase is all about co-design to refine it based on real-world needs. This experience showed me that Open Science isn't just about making data available; it is about making it accessible and useful.

Overcoming challenges in Open Science

Building an Open Access tool for a global audience has been eye-opening and, honestly, challenging. Balancing the need for transparency with my academic goals was not easy, and sharing raw data before publication felt risky. Balancing detail and usability was another challenge; too much information could overwhelm users, so feedback and adjustments were essential.

Launching a rough prototype allowed for real-world testing, though it required flexibility to adapt to changing needs. Aggregating and standardizing data from hundreds of sources was a huge, time-intensive effort, and juggling this alongside my PhD timeline was challenging. These hurdles reminded me that Open Science involves extra work and occasional uncertainty, but the impact makes it worthwhile.

A transformative journey

Becoming a Marie Curie Fellow did not just give me an exciting research project; it changed how I think about research itself. Open Science has shown me the power of creating resources that are accessible, actionable, usable, and shared globally. What started as a requirement became a global collaboration platform that enables people to design evidence-based co-creation.

This journey has been a humbling reminder that when research fills a real need, people will come. Open Science did not just make my research accessible; it helped me build a platform that now connects researchers, practitioners, and students across 19 countries (and counting). This experience has shown me that Open Science is more than a checkbox; **it's about connecting, empowering, and transforming how we work together across borders and disciplines**.

Join Us

If you would like to join this journey as a co-designer and user of the tool, please reach out to me at danielle.agnello@gcu.ac.uk.

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54 Co-Creation Projects

Image by Danielle M. Agnello

D. Agnello, 2024

MCAA Policy Working Group - Open Science Initiative: Paving the Way for an Open, Impactful Research Culture

Theodota Lagouri, Chair of the MCAA Policy Working Group and CERN researcher, invites MCAA members to adopt Open Science practices, which will foster a global shift towards equitable research, benefiting professional development and society. The transformative movement in Open Science is redefining research, where transparency and collaboration fuel work that is accessible and impactful.

Bionote

Theodota Lagouri, Research Scientist at CERN and Yale, serves as the Chair of the MCAA Policy Working Group, supporting Open Science as a pathway to impactful and inclusive research. With extensive experience in experimental particle physics and scientific publishing, she promotes initiatives focused on enhancing accessibility and global collaboration. Her work with open-access publications at CERN connects policy and practice to enhance transparency in science. Through her leadership in the MCAA Policy Working Group, she encourages a research culture that values Open Science as essential for professional growth and societal advancement.

Photo by Jack Fisher

Open Science encompasses more than just sharing research; it involves creating an inclusive, collaborative, and impactful environment. In my research work at CERN, I have seen how essential practices like open-access publishing and data sharing significantly enhance visibility and encourage collaboration among diverse research fields.

These approaches enable researchers to advocate for evaluation frameworks that recognize the broader contributions of their work. I encourage MCAA members to embark on this transformative journey toward a research culture where Open Science is fundamental to both professional development and scientific advancement. For example, at CERN, our Open Science policy enhances researchers' visibility, enabling them to build partnerships with industry and stakeholders, which fosters a vibrant culture of collaboration.

CERN's commitment to Open Science is evident in the pioneering efforts undertaken to provide open access to publications, data sharing, and public engagement. For example, through partnerships like SCOAP³ and platforms such as arXiv, CERN makes research results freely available, embodying the UNESCO vision for Open Science as an inclusive framework that promotes collaboration and societal benefits. My experience with Open Access publications in experimental physics made me aware of the significance of a commitment to accessibility, demonstrating how improving the availability of research can increase its impact.

The Open Data Portal at CERN is another prime example of Open Science in action, allowing researchers worldwide to access experimental data in accordance with FAIR principles (Findable, Accessible, Interoperable, and Reusable). This initiative enables scientists to build upon findings, verify results, and minimize redundant experiments, thereby accelerating the sharing of knowledge globally. Additionally, Zenodo, developed at CERN, serves as an open-access repository where researchers can publish various outputs — datasets, software, reports, and publications—further advancing transparency and cultivating a collaborative research environment.

Open Science not only enhances credibility but also broadens opportunities for collaboration.

Open-source tools and software developed at CERN encourage researchers to adapt and build upon existing technologies, furthering innovation across disciplines. Platforms like GitHub enable collaborative code sharing, assisting a dynamic community that thrives on problem-solving and innovation beyond institutional boundaries.

Several recommendations for initial practices in Open Science include:

- **Open-Access Publishing**: Selecting open-access journals or utilizing platforms such as arXiv or Zenodo can facilitate the free sharing of research work.
- **Data Sharing**: Ensuring data complies with FAIR principles can enhance usability; Zenodo serves as an excellent platform for publishing datasets.
- **Open Software and Hardware**: Licensing software and tools openly can promote reuse and foster cross-disciplinary innovation.
- **Open Peer Review**: Engaging in open peer review or publishing review reports alongside preprints can enhance transparency in the research process.

However, despite the immense potential of Open Science, the researchers face several challenges that must be addressed, including:

- **Funding**: Publication fees can present obstacles, highlighting the need for sustainable funding solutions.
- **Data Privacy**: Balancing openness with ethical and legal considerations regarding sensitive data is critical.
- **Quality and Reproducibility**: The rapid pace of open dissemination can compromise quality; clear guidelines are essential.
- **Recognition and Incentives**: Traditional metrics often overlook contributions to Open Science, which can affect career progression.
- **Infrastructure**: Many institutions may lack necessary resources for effective data sharing and storage.

- **Intellectual Property**: Open licensing can conflict with proprietary interests, requiring careful navigation.

To build a culture that values Open Science, collaboration among researchers, institutions, and funding agencies is essential. By addressing these challenges, we can create a supportive environment that encourages and rewards openness in research. Open Science empowers researchers to enhance their work's transparency, reproducibility, and impact.

As the Chair of the MCAA Policy Working Group (WG), I invite you to engage with our **Thematic Group on Open Science Policy** in collaboration with OPUS, a European project dedicated to embedding Open Science principles into research evaluation and career advancement. This initiative also aligns closely with my work at CERN, where Open Science is not merely an ideal but a foundational aspect of our research culture. By participating in the MCAA Policy WG's Open Science Policy initiative, we can come together to advance more relevant and accessible research. Through collective effort, we can work to overcome obstacles, improve accessibility, and shape a research landscape that values Open Science as integral to impactful, ethical, and collaborative research. Additionally, the collaboration between MCAA Policy WG and OPUS will empower MCAA researchers to effectively integrate Open Science into their career development by aiming to develop evaluation frameworks that recognize Open Science contributions alongside traditional metrics, thus promoting a research culture that values both transparency and accessibility for all.

Join the MCAA Policy Working Group.

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Image by Midjourney prompt by Fabrizio Martina

Special Issue
Open Science in its many forms

Photo by Nicolas Joly

Marianna Chimenti during fieldwork for her Marie Skłodowska-Curie Individual Fellowship (2022) at Phillip Island Nature Park, Victoria, Australia.

The evolution of Open Science: Sharing, collaborating, and expanding impact in ecology

Bionote

Marianna Chimienti is a lecturer in Marine Top Predator Ecology at Bangor University in the UK. Her academic journey spans several countries: completed her undergraduate and graduate studies in Italy, earned a Master of Research and PhD in the UK, undertook her first postdoctoral project in Denmark, and pursued a Marie Skłodowska-Curie Individual Fellowship in France before returning to the UK for her current role. This diverse international experience has shaped her commitment to transparency and inclusivity, which is evident in her support for Open Science practices and her encouragement of data and code sharing to foster collaboration.

Open Science has transformed ecology, moving from hidden codes and data in appendices to global platforms like GitHub and Global Biodiversity Information Facility (GBIF). These changes foster transparency, collaboration, and broader accessibility. However, challenges remain, from data and code standardization to shifts in academic culture. Embracing open practices will empower the next generation of ecologists to drive impactful, inclusive, and globally connected research.

How did it all start for me? I remember very clearly the days I was preparing the manuscript for my first PhD chapter. My supervisors said, "Marianna, did you prepare your codes so that someone can run it with their own data or the data you share? Let's have one of the other PhD researchers check if it is understandable and easy to run." I felt (and still feel) a mix of

Image by Midjourney, prompt by Fabrizio Martina

emotions. I was excited – "What? Me, really? People would actually use my codes to analyze their data?". At the same time, I felt responsible for what I was publishing out there. It was important that I was clear and transparent. My journey in open science and open science practices started with my PhD (2013-2017), which is still evolving.

How open practices in data and code sharing have evolved in ecology

As a curious mind and a growing scientist, I eagerly wanted to know how to apply the analytical approaches I was reading about in scientific publications to my own data. Analytical codes were still published mainly as appendices to our scientific publications, and data repositories were just starting to appear and be adopted. We were limiting the access and transparency of our science.

The advent of digital platforms and repositories dramatically changed this landscape. We increasingly use GitHub for code sharing and collaborative project development, fostering an environment of transparency and reproducibility. Data sharing has gained momentum through established repositories like the Global

Biodiversity Information Facility (GBIF), which provides access to vast datasets on species occurrences, and platforms such as Dryad and Zenodo that facilitate the storage and sharing of research data with persistent Digital Object Identifiers (DOIs). Large databases like Copernicus offer satellite data invaluable for ecological research, enabling scientists to monitor environmental changes at unprecedented scales.

Furthermore, Movebank serves as a data repository specifically for animal tracking data, underscoring the importance of tailored solutions in data management. This shift towards Open Science not only enhanced the accessibility of ecological data but also fostered inclusivity, allowing a broader range of researchers, including those from underrepresented groups, to engage in ecological research and collaborate.

Driving impact and sustainability

The impacts of these developments are palpable in our daily lives. Thanks to open science practices, I have developed my network as a scientist. Beyond my work, open science practices promote informed decision-making in environmental policy, conservation

efforts, and sustainable practices. Enhanced transparency and data availability empower citizens, policymakers, and educators, fostering a more informed public regarding ecological issues.

Navigating upcoming challenges

The journey of Open Science is not without its challenges. One of the foremost challenges lies in fostering open science practices across generations of researchers. Be mindful of the effort that is required to collect those datasets, contact data owners, and offer collaboration. Analytical codes and platforms also evolve. Updating older codes and translating across languages (from R to Python, for example, or vice versa) is also an example of good practice. Equally significant is the need to standardize and connect the ever-growing number of approaches and datasets within ecology. The proliferation of data sources, while beneficial, has led to challenges in interoperability and data integration. Researchers often face difficulties in aligning different data formats, terminologies, and methodologies, which can hinder collaborative efforts and the synthesis of knowledge.

Collaborative efforts, such as developing community-led data standards and promoting interoperable data formats, are vital to overcome these obstacles. Initiatives like the Data Quality and Reporting Standards provide

a framework for enhancing data quality and usability, facilitating seamless integration and comparison across studies.

As academic culture and reward systems often prioritize traditional publication metrics, it can be difficult to cultivate a mindset that values outputs such as published datasets and code repositories. I am pleased to see that these outputs are starting to be valued in funding calls.

As the ecological community continues to embrace Open Science, it will be imperative to create a culture that not only values data sharing but also supports the infrastructure necessary for effective collaboration and communication. This involves engaging diverse stakeholders, including researchers, educators, policymakers, and community members, in the conversation about Open Science. The commitment to transparency and inclusivity will remain critical in shaping the next generation of ecological research and its impact on society.

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Image by Midjourney, prompt by Fabrizio Martina

Special Issue
Open Science in its many forms

Image by Nooshin Heidari

The Open Science journey: Learning to transform ideas into actionable projects

Got an interesting idea to strengthen your field of research or make science impactful for all? But not sure how to turn it into action? Start with Open Science—a toolkit to bring your vision to life. Learn how open access, collaboration, and innovation can transform your vision into a project that benefits both your research community and society.

As a researcher, my vision has always extended beyond conducting research to contributing meaningfully to the research community and making science impactful for the broader public. This vision gained even more clarity after attending a session on "Open Science Research" at the MCAA 2024 conference. Discovering Open Science tools, resources, and implementation strategies through the Open Life Science (OLS) Nebula cohort has been the perfect choice to bring this vision to life and start

making a real difference. In this article, I share my insights and experiences from participating in this cohort alongside like-minded individuals whose projects were diverse, impactful, and truly inspiring.
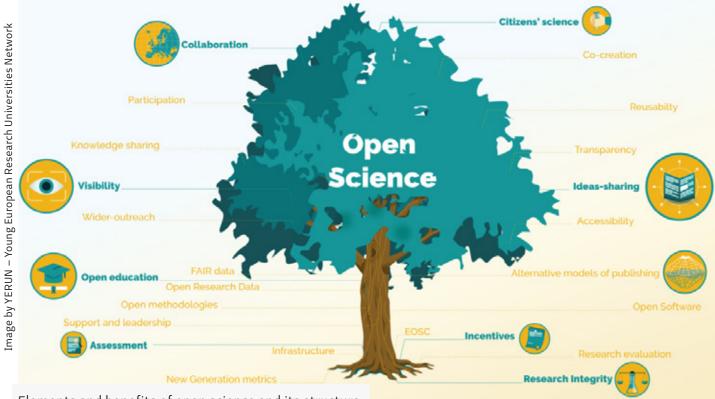
Before embracing open science learning

Before delving into Open Science, I thought it was limited to publishing in open-access journals to make research freely available. However, completing the

Bionote

Shanmugapriya Periyannan, a postdoctoral fellow at Universität Siegen, Germany, is a first-generation PhD holder in her family. A two-time Marie Curie Fellow, she actively contributes to science communication and policy groups. Passionate about girl children's education, neurodiversity, inclusivity, and mental health, she volunteers extensively for underprivileged children's education in India and advocates these causes through her work, personal platforms, and the MCAA. Recently, she honed her skills in Open Science, citizen science, and researcher mental health through the OLS-Nebula cohort (NASA-funded) and ReMO Ambassador Training School (EU-funded).

Image by YERUN – Young European Research Universities Network

Elements and benefits of open science and its structure.

application for the learning cohort revealed it was much more. It made me reflect on how I could contribute and design a project during this journey, which brought a sense of purpose. I proposed a project inspired by a persistent misconception in my field— an issue often overlooked yet significant. Though excited to join the cohort, I initially felt uncertain about how to implement my idea or make it a reality. With its mentorship and collaborative environment, the program provided the guidance I needed to bridge that gap.

The journey and key learnings

The learning process encompassed several key aspects, many of which were new to me, while others were familiar practices that researchers often follow without realizing they contribute to making science more accessible. The major topics covered included the following elements of Open Science:

Ethos: This section emphasized the moral values and credibility that researchers should cultivate to ensure responsible practices. It highlights the importance of transparency, accountability, and inclusivity in scientific research.

Tools: I learned about the various tools available for Open Science, their necessity, and how they facilitate transparency by enabling reproducibility and promoting knowledge exchange.

Data: This part explained what open data is, the different types available, and how sharing research data enhances verification and reusability. Importantly, it also addressed when to share data and when it might be best to withhold it.

Results: This section illuminated the need for open results, as they invite constructive feedback, help identify and rectify mistakes, and ultimately improve the reliability of scientific communication.

Code: I gained insights into how keeping code open fosters collaborative advancement and knowledge sharing, leading to the formation of supportive scientific communities.

The learning journey was not without challenges. Many of us started with minimal knowledge, particularly regarding open science terminologies and their practical application. Hands-on work, discussions, and expert insights helped us overcome this. For example, we learned from the co-founder of PREreview, an open platform aimed at improving publishing practices in biology. By sharing all manuscript versions and fostering global feedback, the platform supports early-career researchers and the sustainable development of the scientific community and science. It was remarkable to learn that platforms like this, combined with open-access initiatives in scientific journals, are driving scientific progress by offering a 66% increase in citation advantages.

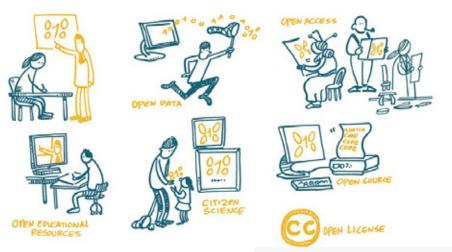## Transformations after open science journey

The Open Science journey deepened my understanding of its principles and clarified its importance. It also empowered me to communicate my research more effectively and make it accessible to all. A key aspect of this program was the invaluable mentorship provided to each participant. Mentors engaged with us to refine our project proposals and offered guidance that brought us closer to implementing our ideas. For instance, I took the first step of creating a data repository to benefit researchers in my field. With my mentor's guidance, I envisioned expanding it into a citizen science project, making it accessible to the broader public. While the project remains a work in progress, these initial steps have boosted my confidence to persevere and develop it further.

This experience transformed me from a novice in open science to someone capable of implementing actionable projects and inspiring others to do the same. I encouraged a colleague to join the program, and together, we motivated four more budding researchers to participate in the current OLS cohort.

The journey not only deepened my knowledge but also gave me a renewed sense of purpose. It equipped me with the tools to contribute meaningfully to science that is impactful, inclusive, and accessible—empowering researchers at any stage to make a difference.

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On the road to Open Science

Image by Patrick Hochstenbach CC BY 4.0

Special Issue
Open Science in its many forms

Empowering co-creation through Open Science: Insights from Health CASCADE

This piece gives an account of my engagements within the salient realm of Open Science (OS) - a movement championing openness, transparency, and collaboration in research. Drawing from my journey as a Marie Skłodowska-Curie PhD Fellow, it explores how OS principles have shaped my teaching and research practices, from presenting at respected institutions across Europe to co-developing wide-scale policy précis aimed at European member states.

Open Science (OS) advocates for the early sharing of scientific knowledge throughout the discovery process, rooted in principles of openness, transparency, rigor, reproducibility, and knowledge accumulation (Friesike et al., 2015). This transformative movement is gaining noticeable traction worldwide, particularly in Europe, where the urgency for open data practices has become increasingly apparent (Vicente-Saez and Martinez-Fuentes, 2018). International funders, including the European Union, are now prioritizing data accessibility (Stieglitz et al., 2020). Yet, despite calls for collaboration among the Quadruple Helix actors - government, academia, industry, and civil society - scientific knowledge creation frequently remains confined to closed silos
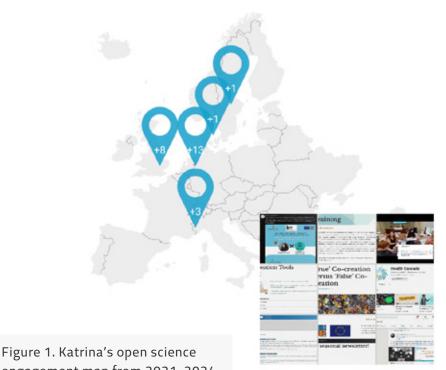
(Mačiulienė, 2022). This prompts critical questions about how we might better integrate OS principles into our academic and professional practices.

As a Marie Skłodowska-Curie PhD Fellow, I have focused my research and teaching on the practical application and embodiment of OS principles (Figure 1). In my lectures on Program and Policy Implementation in Public Health at Amsterdam University College (AUC) and while guiding students at VU University Medical Center (VUmc) in Research Proposal Writing and Research Methods, I emphasize knowledge dissemination and collaborative learning to nurture future scholars. My scientific presentations at the University of Cambridge, where I focused on the Complexities

Bionote

Katrina Messiha is a Marie Skłodowska-Curie PhD Fellow in the European Commission project, Health CASCADE. Her doctoral research is focused on establishing conceptual and methodological principles for co-creation approaches in public health research. As this field continues to evolve, Katrina aims to develop core theory-based principles that can address health inequalities and complex, 'wicked' public health challenges through interdisciplinary research and policy development. Katrina has recently served as a visiting academic and policy researcher at EuroHealthNet as well as a visiting researcher at the University of Cambridge.

Image generated on https://app.datawrapper.de/map. Author's own diagram.

Figure 1. Katrina's open science engagement map from 2021-2024.

of Multidisciplinary Work and Discourse Analysis in Co-creation, illustrate the practical applications of OS. Furthermore, discussions on my PhD topic, Theory-based Principles for Co-creation in Public Health at Amsterdam UMC and Amsterdam Public Health Institute, highlighted the importance of sharing research findings to enhance the quality and impact of scientific inquiry. I have also delivered seminars at Birkbeck, University of London on my PhD topic and lectured at the University of East London on Co-production and Research Communities, reinforcing my dedication to OS across diverse academic contexts.

In addition to presenting at international conferences such as the 6th International Conference on Practice Research in Social Work

at Aalborg University, I have engaged in academic initiatives such as the International Society of Behavioral Nutrition and Physical Activity (ISBNPA) Inclusivity and Diversity working group. These experiences have fostered rich exchanges of ideas among scholars and contributed to vital discussions on public health and co-creation. Another role in co-organizing the 'Participatory Research & Co-Creation' special interest group at the Amsterdam Public Health Institute further exemplifies my commitment to OS. This initiative hosts quarterly meetings that provide an open platform for discussing co-creation, enabling researchers to share ongoing work, seek constructive feedback, and collaborate across disciplines. This interest group embodies

the principles of inclusivity and accessibility, creating a supportive environment for both early-career and seasoned researchers to enrich the evolving knowledge base on participatory research and co-creation.

A substantial achievement in my academic career has been the co-development of the policy précis, "Promoting Health Equity through Social Participation and Citizen Engagement" at EuroHealthNet, a not-for-profit partnership focused on public health and reducing inequalities (Figure 2). This policy précis addresses the critical issue of limited and unequal citizen engagement in health policymaking, which often neglects historically excluded population groups and results in policies that fail to reflect public needs. By underlining the salience of inclusive social participation, the précis highlights how such engagement can reduce health inequalities and foster trust within communities. It advocates for policymakers to implement structured engagement mechanisms, such as citizen panels, to ensure that diverse perspectives effectively inform health policies.

I have also engaged with key global health organizations, including the World Health Organization HQ in Geneva, Médecins Sans Frontières, and the Geneva Health Forum, to present my PhD findings

and facilitate knowledge exchange. These in-person discussions not only disseminated my research but also embodied the principles of OS by fostering collaboration and dialogue among various relevant stakeholders in the field of public health co-creation.

Beyond formal engagements, I find joy in writing blogs that address my PhD topic, such as "True' Co-creation Versus 'False' Co-creation" for Health CASCADE and "Critical Realist Insights: Navigating Interpretation and Experience of Co-development Work" for the ComPHAD Project at the University of Cambridge, all with the intent of making my work accessible to a broader audience. I actively upload my research to OS platforms like Zenodo and publish in reputable journals that offer open access. Furthermore, I leverage social media, particularly LinkedIn, to advocate for best practices

Image generated on https://app.datawrapper.de/map. Author's own diagram.

Figure 2. Consumers of Policy Précis, "Promoting Health Equity through Social Participation and Citizen Engagement": European members of EuroHealthNet.

in co-creation and share my insights. I have also developed resources on our project website to facilitate reflection and engagement with co-creation, specifically related to Thinking for Co-creation. I will endeavor to

continue embracing OS since OS empowers us to illuminate the unknown and transform ideas into impactful realities.

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Special Issue
Open Science in its many forms

From unawareness to conviction: The essential role of Open Science for everyone

Image by Christina Makoundou

Six years ago, accessing scientific literature was challenging, and the concept of Open Science felt distant and unfamiliar. Today, I am dedicated to ensuring my research is as accessible as possible. This is the story of my transformation from a student constrained by paywalls to a researcher dedicated to Open Science, promoting knowledge-sharing for all.

From paywalls to Open Access: My journey to Open Science

Six years ago, I could not define Open Science or appreciate its potential to make research more accessible. Accessing scientific literature seemed impossible—paywalls and subscription fees made knowledge inaccessible, and the idea of free research seemed almost unreal. During my studies, we were taught to navigate paywalls, with the assumption that open-access documents lacked quality. This system instilled the idea that "valuable research costs," and I did not question it until I realized the broader implications of this model.

Bionote

Christina Makoundou is an MSCA Postdoctoral Fellow committed to advancing safer and more sustainable urban infrastructure. Her work focuses on vulnerable road user safety and valorizing waste and bioresources, such as rubber, oils, and lignin, as alternatives in construction. Initiated into Open Science practices through her research and further inspired by her experience as a project follow-up practitioner, she is passionate about making knowledge accessible and fostering collaboration. Beyond her research, she is an active member of the Marie Curie Alumni Association, where she contributes to the Communication (through the newsletter and Irradium Magazine as member of the Editorial board), Sustainability, and GEDI working groups,, as well as participates in multiple regional chapters.

Over time, my perspective changed. I saw how restricted access was not just limited to me as a researcher but to everyone seeking knowledge. Why should vital research be locked behind paywalls, available only to those who can afford it? Open Science, which democratizes knowledge, seemed like the answer. Anyone, regardless of resources, should have access to scientific findings.

Today, I am committed to making my research freely available whenever possible. However, the current system presents challenges, particularly for researchers with limited funding. Open-access publication fees are often significant, creating barriers not just for readers, but also for researchers. These costs make Open Science harder to pursue.

Implementing Open Science in practice

Despite these challenges, I have sought ways to make my research accessible. I use author-accepted versions or preprints to share my findings openly without incurring substantial costs. This allows me to encourage Open Science principles while adhering to the constraints of traditional publishing.

My commitment to Open Science has been strengthened by my MSCA fellowships, which provided funding that made open access

somehow financially possible. Through this opportunity, I became familiar with structured Open Science practices. Yet, I noticed that clear guidelines for Open Science, especially for early-career researchers, are lacking, and what about those who do not have the advantage of specific funding? This gap can create barriers for scientists eager to embrace Open Science but without the means to do so.

Learning through collaboration

A pivotal experience in my journey was my role as a project follow-up practitioner at the European Research Council (ERC). I worked on addressing Open Science challenges for EU-funded researchers. This experience deepened my understanding of Open Science practices and highlighted the need for more consistent and accessible practices across institutions.

Apart from my scientific dissemination, another milestone on my Open Science journey was my involvement with the Swedish Tyre Recycling Organisation (SDAB) and their ELTRP platform, which focuses on making research related to recycled rubber accessible. As a proofreader, I have helped ensure that as much research as possible is available openly. SDAB, which acted as a non-academic advisor during my MSCA PhD fellowship, practically introduced me to the concept of

Analogy with the title of the article, from the dark to the light concerning some scientific practice - picture taken in Bologna during the first MSCA project.

Image by Christina Makoundou

Image by Christina Makoundou

making science "**FAIR**"—**Findable**, **Accessible**, **Interoperable**, and **Reusable**. This framework is essential, and I believe it should be applied also to other fields.

Through these experiences, I have learned that although I am still not an expert in all practices, I am dedicated to learning and improving my understanding of Open Science. Each step I take brings me closer to my goal of making science accessible and inclusive. Recently, I discovered the UNESCO working group's Recommendation on Open Science. Learning from global experts reinforced the need for a collaborative, inclusive approach to making research accessible and transparent.

Mentoring the next generation of Open Science advocates

Now, as a mentor and supervisor for students, both through MSCA projects and independent research, I strive to introduce them to Open Science as early as possible. By teaching the value of openness, I hope to encourage my students to make their research accessible and to contribute to the growing Open Science movement.

Introducing students to Open Science practices and possibilities early in their path helps them understand the importance of knowledge sharing. As potential future researchers, they might play a vital role in the

continued evolution of open, collaborative science. Through mentorship, I hope to support them in embracing open science and continuing the shift toward a more inclusive scientific ecosystem.

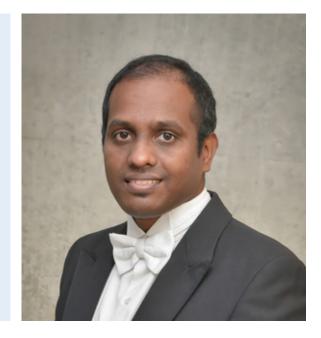## Looking ahead: A call for support and awareness

As I continue this journey, I see a need for broader institutional or even systemic shift, change and support to make Open Science sustainable for all researchers. Universities and funding bodies can help by providing clear guidelines, support, and training, particularly for early-career scientists. **Open Science should be the standard, not a privilege reserved for those with specific funding or resources**.

Reflecting on my journey from unawareness to active participation, I am reminded of the transformative power of Open Science. For science to truly benefit society, it must be available to everyone seeking it.

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Special Issue
Open Science in its many forms

Bridging the gap: Empowering communities through science communication

As a scientist specializing in osteoarthritis, I discovered the power of science communication when I shared my research in a local Tamil newspaper. The overwhelming response from readers, including patients, showed me the impact of making complex science accessible. Science communication bridges the gap between researchers and communities, empowering people with knowledge that transforms lives.

As a postdoctoral scientist specializing in osteoarthritis disease pathology, I have spent years deeply involved in laboratory research, data analysis, and academic publications. My focus was entirely on the scientific community, where my work would primarily reach other researchers, healthcare professionals, and students. However, my perspective on the role of a scientist and the impact of research took a transformative turn when I asked myself a simple question: "Why not communicate my research to a broader audience?"

This thought first emerged while I was in the process of drafting a complex scientific manuscript on osteoarthritis. I realized that, while scientists are adept at sharing information within our own circles, the people
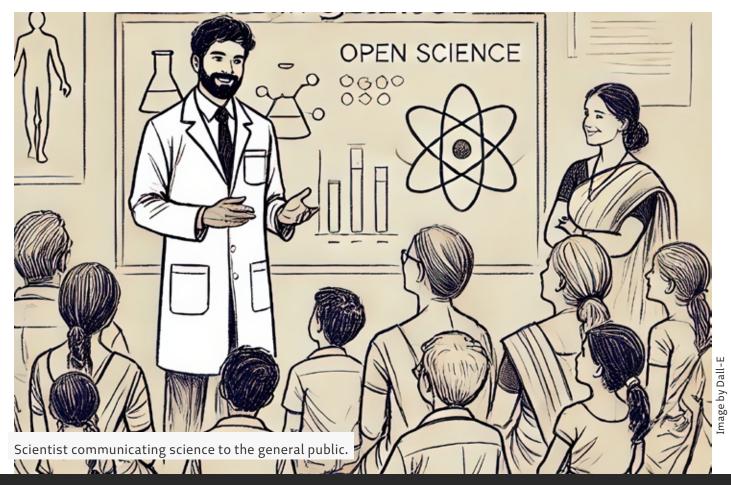
Bionote

Kannan Govindaraj is a molecular cell biologist, dedicated to understanding musculoskeletal diseases and translating scientific findings into clinical solutions. His research centers on how cells interact with their microenvironment - a key factor in disease pathology. His journey began with a Master's in Molecular Biosciences in India, followed by specialized training in cell-biomaterial interactions and fluorescence imaging. During his PhD in the Netherlands, he developed an innovative biophysical tool to study cell behavior in osteoarthritis. Currently, as a Marie-Curie Fellow at Harvard Medical School, his work explores tissue engineering strategies, focusing on how cellular environments affect disease progression and potential therapies.

who might benefit most from understanding osteoarthritis — those affected by it or at risk — may not have access to, or the background to understand, scientific publications. Many people may not even be fully aware of what osteoarthritis is, the factors that contribute to it, or the treatment options available. This inspired me to try a different approach: I decided to write an article for a regional Tamil newspaper, explaining osteoarthritis in a simple, accessible language.

When the article was published, the response was overwhelming and heartening. People reached out to me via email and social media, sharing their personal experiences with osteoarthritis and expressing gratitude for the information. Some individuals were people I knew personally but had never shared their struggles with the disease until then. They told me that, had the article not been written in Tamil and published in a local newspaper, they might never have understood osteoarthritis in this way. For the first time, I felt a direct connection with the individuals

impacted by the disease I studied in my lab. Their response gave my research a new meaning and a new purpose. My work no longer felt like an abstract academic pursuit — it was now a mission to find solutions that could improve real lives. This experience highlighted the critical role of science communication in bridging the gap between researchers and the communities they aim to serve.
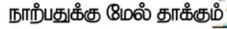
Inspired by the impact of this outreach, I began exploring other topics for public communication. Following the success of my article on osteoarthritis, I wrote another article about the aviation industry's environmental impact, explaining how air travel contributes to global warming and discussing the environmental costs associated with frequent flying. Once again, the response was powerful. Readers expressed surprise at learning about the significant environmental impact of air travel, and some shared that they would think more critically about their travel choices in the

Scientist communicating science to the general public.

Image by Dall-E

future. The positive feedback emphasized the importance of science communication not only in educating the public but in potentially influencing behaviors for a healthier planet.

These experiences have shown me that scientists have a vital role to play in engaging with local communities, not only to share knowledge but to empower people to make informed decisions. In academia, the focus is often on publishing in peer-reviewed journals aimed at a specialized audience. Yet, the public rarely has the opportunity or background to engage with these publications. By writing in Tamil, a regional language, and choosing an accessible platform like a local newspaper, I could reach a new audience — one that was both appreciative and eager to know these facts.

These outreach experiences have not only given me a new perspective on the value of science communication but also inspired me to continue engaging with the public. As scientists, we have a responsibility to make our research and knowledge accessible to those who can benefit from it. In a world where misinformation often spreads faster than facts, it is crucial for scientists to take

Example of the article in Tamil news: 3 to 4 million people read it daily.

an active role in ensuring that the public has access to accurate, understandable information. Engaging with the public in this way builds trust in science, fosters informed decision-making, and strengthens the connection between researchers and the communities they serve.

Through my experience, I have realized that science communication does more than just share knowledge — it builds connections, fosters understanding, and reshapes the priorities of the scientist. It turns a researcher from someone who studies a topic in isolation into an advocate who serves the community. I hope to inspire other scientists to engage with their communities, share their research, and bring their work to life for a broader audience.

Example of the article in Tamil news: 3 to 4 million people read it daily.

Kannan Govindaraj
MCAA Newsletter Editorial Board
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Special Issue
Open Science in its many forms

When the world was not for Open Science

In the last few years, we have heard the term Open Science more and more often, but what is it, and why is it so important? Are we really living in a new Open Science era? Maybe for some of you, it is normal, but once upon a time, the world was not open for Open Science

Open Science is a relatively new concept. We are asked more and more to disseminate our scientific work to all audiences, both scientific and non-scientific, and how important it is. When I was a little girl, I dreamed of being a scientist, but I saw this world so distant from me. It is relevant to put the scientific world in a place that everyone can reach. Only if our work is shown to society, people will understand the vital importance of scientific research.

I found myself as a PhD researcher, even while working in a scientific field, with difficulty accessing articles because of a lack of resources to pay for journal subscriptions. I remember that I had to ask around to download the articles for me. It sometimes took several weeks for those articles to arrive in my inbox, and sometimes they have never arrived. You can imagine how frustrating it is when the literature search is a relevant part of the research work. My supervisor at that time said to me: "**Do not complain. In my student time I had to ask for the articles by post**".

Lorena Falco at the Science Festival 2021 in Pau, France, in the frame of the MSCA IF BENEFICCE project.

Bionote

Maria Lorena Falco is a PhD candidate in chemical sciences, specialized in biotechnological industrial processes. She graduated at National University of La Plata (Argentina), and she worked as a postdoc in several European Universities and research institutes. Now, she is working as a researcher at Université de Pau et des Pays de l'Adour (France). Her research work is committed to solve environmental and societal problems such as metal and plastic pollution using microorganisms for waste valorization. She publishes not only in several scientific journals, but also in magazines of general interest, radio and TV programs. She participated in several outreach activities to bring science closer to society.

Once I achieved my PhD degree, I worked as a postdoc in several short contracts in the manner that at the end of each contract, my university accounts were deactivated, and, again, my access to science was very restricted. The same was applied for data processing software, just at the moment when I was about to finish processing my research data and to write my articles. But why do not write the articles during your contract? Of course, ironically, 6 months or one-year contracts are enough to make all the experimental work with good results, process the results, and write all your articles, especially if you start a project from scratch.

This story is just one example to show how important and inclusive Open Science is, from the point of view of a single experience. Unfortunately, I am sure that I was not alone. How can we inspire future generations to continue our jobs if we do not share it? How can we claim that we do science for society if we keep closed in our 'academic bubble'? Open Science is like opening the doors of our labs to the world, but it is also opening us to more equitable work conditions for scientists from all parts of the world, giving to everyone who wants to follow this fantastic adventure of scientific research one of the most valuable tools: knowledge.

It comes to me now a very concrete example of how Open Science can accelerate the progress of research, I remember in COVID times, when the only solution to limit the impact of the virus and finish the global confinement was to find a vaccine, many journals (if not all of them) got Open Access in that topic to accelerate the research that finished in a discovery of an effective vaccine in a historical record time, saving many lives not only from the virus, but also from all the collateral damages of the confined life.

Even if there is still a long way to go to arrive at a real Open Science system, where authors do not need to pay for making their scientific articles open for all, I think that we are already in a good way to achieve it. We should keep giving it the importance that it needs and look for solutions to make Open Science even more inclusive than it is now.

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Image by Midjourney, prompt by Fabrizio Martina

Special Issue
Open Science in its many forms

Open Proposals: Heresy or Trend?

Open Proposals might be as obvious as daylight in disciplines where preregistration is the norm, but not far from heresy in others. So who is right? And who should early career researchers follow?

In moments of transition of best practice, it is ok to feel nervous and uncertain. As life would have, the answer is not always black or white. The best lessons and advice are actually hidden in the nuances, each nuance, a silver bullet solution to a specific situation.

Bionote

Paola Masuzzo has a PhD in Bioinformatics from Ghent University, in Belgium, and a big passion for data and open knowledge. She has participated in many international projects for the promotion of open research practices, especially for FAIR data and open source code. She is currently a data scientist for a corporate organization, an independent researcher by the Institute for Globally Distributed Open Research and Education (IGDORE), and vice president of onData.

Ivo Grigorov has a PhD in Marine Sciences, full-time fundraiser for UN SDG 13 and 14 related research, and advocate for openness since 2006.

Turning back time…

As "open research" became a thing in the early 2000s, largely thanks to the #OpenAccess movement, different disciplines moved in at different rates. "Climate sciences" adopted #OpenData to a degree that may have been perceived as progressive, at a time when proponents argue "climate change accelerates, should not our practice of sharing data at least match that pace!". Even the life sciences field (encompassing molecular biology, genetics, pharmacology, and biomedical research) has historically lagged behind other scientific domains in embracing open science practices.
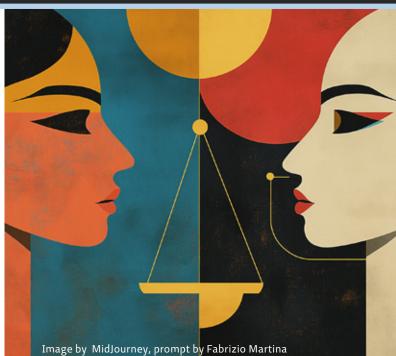
Other disciplines, however, did, and still go, way further. Preregistration (the process of upfront declaration of research hypothesis, method, and research plan) in clinical trials may be as obvious as day [1]. Attempt to transplant those progressive ideas into disciplines focused on uncovering the unknown, and you may find yourself entangled in profound existential debates.

Back in 2018, however, two large projects went for broke. MISSION ATLANTIC [2] and AtlantECO [3], two large HorizonEU Consortia of 30+ partners, in the Natural Sciences, would take the idea of openly publishing their proposals, as a first product of the research.

Wrangling with attitudes from times gone by…

"**This is not how we did science!**" versus "**Why not!**" were the predictable polarised reactions, very much clustered around generational lines. But to the credit of the wiser generation, they objected, they listened to arguments they didn't necessarily subscribe to, and in the end, agreed to disclose proposals, against their gut feelings.

Other (and sometimes very reasonable) objections included "What about financial & legal data? Does that need to be disclosed?"

Image by MidJourney, prompt by Fabrizio Martina

(the answer here is no!). And then there were "What happens if someone sees how disorganized we are?" or "But then someone can copy us!".

Ultimately, through debate, even the strongest opponents, across generational lines, agreed that on balance, sharing the research plan with unknown potential collaborators created greater opportunities for impact than succumbing to anxieties and fears.

Back in the pre-AI age, even the strongest opponents of the idea agreed that our future collaborators should be able to quickly and efficiently see what research we are doing, how, and when, so they can best engage with us serendipitously.

For the convinced, #OpenProposals would allow data-savvy collaborators we had not yet met, to cross-compare a multitude of research plans, efficiently and easily. And based on that, identify new research gaps, but also engage with us in new collaborations.

The Bottom Line … in an AI age!

What of all of this is relevant to an ECR, wrestling with individual grants, in a high-competition environment?

Should YOU do #OpenProposals systematically? What if someone copied you? Plagiarized your ideas? All these are valid questions…but not new ones! Just think back to the #OpenAccess movement 20 years ago dispelled those myths in the context of publishing postprints of manuscripts, when only physicists and mathematicians did that.

The best answers are not the binary ones, but the nuanced ones, each nuance, a silver bullet solution to a specific situation.

Dogmatic #OpenProposal practice may well get us all into trouble. Publishing unfunded ideas as #OpenProposals may well "get the wind out of your sails". Once proposals are secured as projects, #OpenProposals can be the first recognized time-stamp of IP ownership of your great ideas.

#OpenProposals can also boost your own accountability. Think of it as making a promise to your research community and the public.

Issues still remain to be debated [4], and best practices established [5], in the context of AI. However, as "source citation" capabilities of all AI tools improve, so will the attribution of your work. And imagine what your citation and collaboration revenue stream might look like in that future!

But if, after all, you ache for a categorical answer, here is one. Ignoring #OpenProposals is definitely (in our opinion of this author) a career disadvantage. Early Career Researchers should have the skill set and courage to do better than our mentors, but use the same critical thinking (and common sense!) to avoid the dogmatic application of any future trend.

Disclaimer: The authors are far from neutral on the topic of #open anything. The article showcases an effort to push our own comfort limits (sometimes too far), only to step back, learn from it, and make a conscious effort to report back actionable advice for our future selves (that is hopefully closer to reality than our own current biases).

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Special Issue
Open Science in its many forms

How open data fuels smarter micro-mobility?

As cities turn to micro-mobility—think shared bikes, e-scooters, and e-bikes—open data is the force behind smarter, adaptable transit solutions. By sharing real-time traffic, environmental, and infrastructure data, cities and operators can create efficient, responsive systems. Discover how open data fuels the future of urban mobility, making cities greener and more connected.

Photo by Linda Belkessa

While cities grapple with congestion, pollution, and an ever-growing population, the spotlight is on micro-mobility—shared e-scooters, bikes, and e-bikes—as a sustainable solution to urban transportation woes. But what makes these systems truly "smart"? The answer lies in open data. This freely accessible data fuels innovation, helping cities create micro-mobility networks that are efficient, responsive, and aligned with modern urban needs. Open data is not just a tool; it is the foundation of a smarter, data-driven approach to city mobility.

Open data: The hidden powerhouse behind micro-mobility

Open data refers to data made publicly available without restrictive barriers, opening doors to real-time traffic updates, route optimization, and more. By sharing data on city infrastructure, traffic, and environmental

Bionote

Linda is a second-year PhD student focusing on modeling, optimization, AI, and data-driven methods for sustainable mobility, supervised by Zargayouna, Ameli, and Ramezani. She is also an MSCA-ClearDoc fellow. Mostafa is a Associate Professor at GRETTIA, University Gustave Eiffel, specializing in operations research for transportation systems. Mohsen is an Associate Professor at the University of Sydney, with expertise in transport engineering and control systems. Mahdi is Deputy Director of GRETTIA at Université Gustave Eiffel, focusing on multi-agent systems and complex transport applications. All are dedicated to advancing innovative approaches in transportation challenges.

Image by freepik.com

factors, cities allow micro-mobility providers to craft services tailored to riders' needs. Take the European Union's National Access Point (NAP) directive, which mandates a central data hub in each member state. This directive helps developers and researchers access standardized transportation data, driving innovation and interoperability across different transport modes and cities.

To keep micro-mobility systems moving smoothly, a range of data types is critical:

- Traffic data: Real-time congestion, road closures, and incidents inform optimal routes for e-scooters and bikes. For example, Citymapper in London integrates open traffic data, guiding users with multiple transit options, including micro-mobility.
- Environmental data: Weather and air quality data influence route choices, promoting paths with cleaner air and aligning with health and sustainability goals.
- Infrastructure data: Information on bike lanes, parking zones, and pedestrian pathways enables seamless navigation. Helsinki's open data maps, for instance, help providers align their routes to city pathways.

- Demand data: Usage patterns indicate high-demand areas, allowing efficient fleet distribution to meet urban demand.

Cities paving the way with open data innovations

Across the globe, cities are leading by example. Barcelona's Apps4BCN initiative encourages developers to use open transport data, resulting in apps like Smou, which consolidates parking and bike-sharing data to make urban commuting seamless. In New York, the open data portal provides datasets on subway schedules, bike dock availability, and traffic congestion. This information powers Citi Bike, the city's primary bike-sharing program, which combines bike availability and traffic data to provide riders with efficient, safe routes.

Despite the clear benefits, there are challenges to making open data work for micro-mobility. Data quality varies—real-time traffic updates are essential but are sometimes inconsistently refreshed. Privacy is another major concern. To protect user identities, cities like Amsterdam enforce strict data anonymization, enabling the use of aggregated mobility data without

compromising privacy. Additionally, different data formats across cities make it tough for micro-mobility providers to scale their services. Initiatives like the Open Mobility Foundation's Mobility Data Specification (MDS) aim to harmonize standards, encouraging cross-city collaboration.

AI: The brain behind intelligent micro-mobility

Artificial intelligence (AI) is crucial in transforming open data into valuable insights. Machine learning algorithms analyze traffic, predict demand, and suggest alternative routes, enabling cities to adapt in real-time. Multimodal journey planners, like Google Maps, integrate micro-mobility options, guiding users to switch between transport modes based on changing conditions. San Francisco's SFMTA, for example, uses AI models to predict areas of high micro mobility demand, helping operators efficiently allocate vehicles where they're needed most. A recent work by our team in the GRETTIA lab (Université Gustave Eiffel) explores the usage of various open data sources to predict micromobility usage for multi-modal city-wide networks.

Why open data is a win for everyone

The benefits of open data in micro-mobility are far-reaching:

- Better user experience: With real-time data, users can plan routes based on accurate schedules and bike availability, ensuring a smooth experience.
- Environmental gains: Data-driven route optimization and fleet management help cities reduce emissions, promoting greener, low-carbon transit options.
- Economic efficiency: Both cities and operators gain from efficient fleet management, which minimizes idle time and optimizes routes.

- Public trust: Transparency builds trust, with residents more likely to embrace shared mobility when they see concrete benefits.

Creating a successful open data ecosystem requires cooperation between public institutions and private operators. Cities provide the regulatory framework, while operators use data insights to improve services and fleet distribution. This collaboration is essential for a micro-mobility system that meets urban mobility needs and aligns with city goals.

The future of open data in micro-mobility

As urban areas evolve toward sustainable transportation, open data will play a key

Photo by Linda Belkessa

role. Addressing challenges around data quality, privacy, and standardization requires a united effort and clear protocols. With AI-driven insights layered onto open data, cities can build dynamic, responsive micro-mobility systems that not only enhance user experiences but also contribute to a sustainable future in urban transport. Open data has the power to reshape city mobility, setting the stage for a smarter, more connected urban landscape.

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Special Issue
Open Science in its many forms

Bringing safe water to rural communities: An Open-Source Arduino fluoride detector

Photo by Manuela Kim, MCAA Japan Chapter

Bionote

Eugenio H. Otal is an Assistant Professor at Shinshu University, Japan, specializing in materials chemistry, sensor development, and synchrotron radiation techniques. As Chair and founding member of the Japanese Chapter of the Marie Curie Alumni Association, he fosters regional collaborations through Asia Connect Meetings, uniting chapters from Japan, China, India, and Southeast Asia to advance research in environmental science, AI, and computing. With over five years in Japan, he developed metal-organic framework-based water quality sensors. Additionally, Eugenio has practiced martial arts for over two decades, holding a 2nd Dan in Aikido and a 1st Dan in Kendo, demonstrating his deep connection to Japanese culture

In many communities, excessive fluoride in drinking water causes severe health issues, from stained teeth to aching bones. Discover how one researcher's low-cost, open-source Arduino-based fluoride sensor empowers rural populations to identify safer water sources. Join the citizen science movement and help ensure cleaner, healthier water for everyone. Learn how communities can build it themselves and share vital data widely.

In many places around the world, people drink water with dangerously high levels of fluoride without knowing it. You might think, "Fluoride is in my toothpaste—why worry?" But just like sugar or fat, the amount of fluoride matters. Excessive fluoride in drinking water can lead to serious health problems, including damaged teeth (dental fluorosis) and painful bones and joints (skeletal fluorosis). A quick look online reveals a stark reality—children with mottled, damaged teeth and adults

suffering from chronic joint pain, all caused by the water they consume daily. In some rural areas of Africa, the issue is not the absence of water sources—there are plenty—but the fact that fluoride levels vary drastically. Walking ten minutes in one direction might lead you to unsafe water while taking another path for the same amount of time could bring you to a safe source (see Figure 1). The crucial step is having the information to distinguish these sources.

To help address this challenge, I combined my background in chemistry and physics with a passion for creating practical tools. I developed a low-cost sensor that detects fluoride in water. It uses a material that reacts with fluoride and converts that chemical response into an electronic signal. Since many rural communities live on about $1 per day, affordability is vital. After extensive research, I am nearing a solution: a sensor that requires no battery, connects to a smartphone, and enables people to share information about water safety (see Figure 2).

Building the sensor is only part of the solution. Ensuring that communities can access and use it is essential. That is why I published detailed instructions on how to make the sensor locally from simple electronics and cotton-based materials. By sharing all components—3D printing designs, Arduino codes, and assembly instructions—communities can adapt and enhance the sensor themselves. All the information is available free of charge in the supplementary information in the references below.

Here is where citizen science comes into play. Instead of leaving data collection and interpretation solely to trained professionals, we can invite citizens to take part in this process. When individuals test their own water sources, they gain control over their health and environment, contributing to a collective understanding of water quality. By encouraging them to gather and openly share their data, we create a more transparent system. This fosters a culture of inquiry, allowing people to move beyond passive reliance on external expertise. The aim is to integrate community-driven efforts and conscientize participants about the importance of sustainable water practices. Over time, these citizen-generated insights can guide NGOs, policymakers, and researchers in developing more responsive and effective interventions.
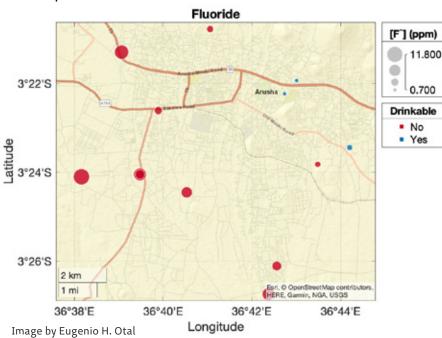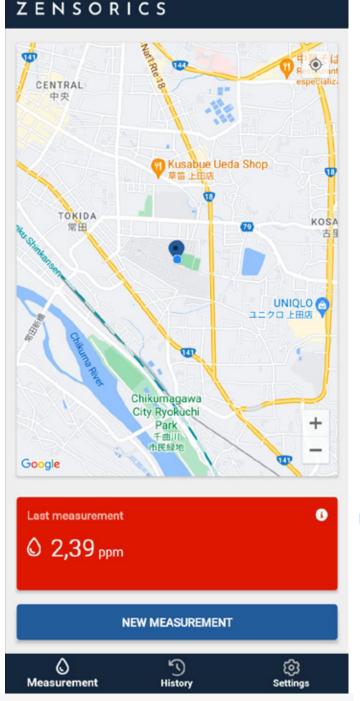

Image by Eugenio H. Otal

Figure 1. Fluoride levels in water vary sharply over short distances, impacting health risks.

If you have ever wanted to play a direct role in shaping a healthier, safer future, now is the time to get involved. Become part of the citizen science experience—connect with local researchers, share your findings, learn from others, and help build a global network of informed decision-makers. Your participation can spark conversations, drive improvements, and inspire others to take action. By joining forces with neighbors, scientists, and communities worldwide, you can help ensure that everyone benefits from more sustainable, equitable solutions.

Image by Eugenio H. Otal

Figure 2. A battery-free, low-cost fluoride sensor enables smartphone-based water safety monitoring.

The idea of actively involving citizens was a central theme at the last MCAA General Assembly, where Citizen Science took center stage. Inspired by these discussions, I expanded the initiative to cover other aspects of water quality. As Chair of the MCAA Japan Chapter, I am working closely with other chapters to strengthen these grassroots efforts. Our exchange of ideas culminated in organizing a regional meeting: MCAA AsiaConnect: Advancing Environmental Science, where scientific research and community action coexist seamlessly.

MCAA is a wonderful community that supports career development, fuels passion, and promotes the sharing of groundbreaking ideas. By engaging everyday people, advancing open-source solutions, and fostering transparent, integrated approaches, we are empowering communities to safeguard their water. Together, we are making waves, shaping a brighter future, and ensuring that knowledge and tools flow freely—just like everyone deserves safe water.

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Special Issue
Open Science in its many forms

Science Europe's recent work to bring together actions on Open Science and research assessment reform

Open science and research assessment reform have been long-standing priorities at Science Europe. A recent survey report and project explores the critical role that public research funding and performing organizations in Europe play in the evolving landscape on both topics and highlights the interdependencies and mutual actions that improve our research systems and enhance the quality and impact of research.

Bionote

James Morris is a Senior Policy Officer at Science Europe. He joined the organisation in 2019 and has a background in marine and molecular biology. He was a Marie Skłodowska-Curie Actions Experienced Researcher at the Royal Belgian Institute of Natural Sciences and holds a PhD in Marine Science from the University of Southampton, UK. At Science Europe, he leads activities aimed at improving the conditions for high-quality research and the evolution of research cultures. He has led the development of recommendations on research assessment and was a member of the drafting team of Coalition for Advancing Research Assessment (CoARA).

In your role at Science Europe, what changes have you seen in the engagement of research stakeholders towards the adoption of Open Science?

At Science Europe, we have made efforts to engage more with different stakeholder groups when developing policy and practice recommendations. This is part of our strategic priority on 'contributing to the evolution of research cultures' across Europe and

globally. The voice of the research community is vital when discussing how to better support and recognize open science practices, and how to make research assessment processes more effective and efficient. I have been delighted to see how

enthusiastic and actively engaged many early career researchers are in these policy discussions, and it gives me confidence that initiatives like CoARA and the Diamond Open Access movement can have a positive impact.

There has been significant movement toward reforming research assessment. What role do you see international collaborations, like those within CoARA, playing in aligning research assessment practices across member organizations?

Research assessment reform has been a topic of discussion for decades, but the recent CoARA agreement and the rapid expansion of the CoARA membership (now at around 700 member organizations) shows that the time is right to push for important changes to how we assess researchers, research projects, and research institutions. Although organizations and national systems will approach assessment processes in different ways based on their own contexts, it is important there is some degree of alignment and consistency. Research systems are connected, knowledge flows, and researchers are often mobile. A set of shared principles, common values, and a collective mission is important in advancing knowledge and contributing to the global challenges we face – international collaborations on things like research assessment reform are key, and, when done right, will help to better support researchers and research ideas.

Image by Science Europe

K´James Morris and Bregt Saenen authored the Science Europe Survey Report "Strategic Approaches to, and Research Assessment of, Open Science"

How do you envision expanding the scope of open science monitoring mechanisms beyond current focuses, such as open-access publications and FAIR data?

Our recent survey highlights the expanding set of activities and actions that contribute to open science. There is a clear broadening of open science beyond the established or traditional elements of open access to publications and research data, to more emerging elements of open science, such as open research methods or public engagement. These emerging elements of open science all contribute to the quality of research and should be valued and recognized in assessment processes. In parallel, monitoring mechanisms can provide valuable information that can help adapt and further support how we embed and value. At the same time, we must take care not to overburden researchers and research managers with these monitoring processes.

You were an MSCA Early-Stage Researcher in Horizon 2020. How did your experience as a researcher influence your work at Science Europe?

I joined Science Europe in 2019 after several years as a post-doctoral researcher (including as 2-years as an Experienced Researcher within an MSCA Innovative Training Network)

and following a short period as a research consultant. I found it fascinating to have the same discussions on research assessment and open science as I had done with colleagues and supervisors in the lab, but now from a different viewpoint. Although I was not very policy-engaged during my time as a researcher, I, like most, inherently knew the issues and challenges associated with how researchers and research projects are assessed, and the opportunities and challenges in trying to contribute to open science. Discussions in the lab about: which journal to target and why; how to share data, and the meaninglessness of the H-index as a way to judge researchers, all translate directly into the work I now do at Science Europe. I have enjoyed building an understanding of how national organizations work to support research, and my experiences as a researcher have been invaluable in understanding how and where the expectations of individuals and organizations align, and how we can work together to improve the conditions and culture in support of attractive work environments and quality research.

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Image by Midjourney, prompt by Fabrizio Martina

Special Issue
Open Science in its many forms

Photo by Snježana Matanović

OPUS pilots: How the University of Rijeka is shaping the future of Open Science

The University of Rijeka (UNIRI) puts Open Science at the centre of its policies with a strong focus on empowering early-career researchers (ECRs). By equipping ECRs with essential skills and resources from the start, UNIRI fosters transparency, collaboration, and societal impact in research. Discover how UNIRI is transforming academic culture and shaping a future where Open Science is the standard.

Bionote

Nataša Jakominić Marot is Head of the University of Rijeka Centre for Research and Innovation. She is an expert in EU higher education and R&I policy and an institutional peer reviewer in her fields of expertise, her portfolio also including EU programmes&projects, innovation and knowledge valorisation. Nataša holds MA in languages from the University of Zagreb, MBA in Public Administration and Management from Vienna, executive education in Innovation for Economic Development from Harvard University, and in a PhD candidate in Sustainable Development. Nataša leads transformative training sessions on developing research support services at universities, leveraging her knowledge and practical insights.

The University of Rijeka (UNIRI) is creating new opportunities for early-career researchers (ECRs) by promoting openness, collaboration, and accessible research. As the first Croatian institution to formally commit to Open Science (OS), UNIRI is making significant strides in shaping a culture of openness both nationally and internationally. Learn how these initiatives are shaping the future of research.

Image by Nataša Jakominić Marot

UNIRI OPUS Pilot units

A Commitment to Open Science

UNIRI's journey began in 2019 when it became the first Croatian institution—and one of the first in Europe—to adopt a formal Declaration on Open Science. This bold move was followed in 2021 by the adoption of an Open Science Policy, which aims to integrate Open Science practices throughout the academic community. That same year, UNIRI signed the San Francisco Declaration on Research Assessment (DORA), further solidifying its dedication to fair and transparent research evaluation.

A key focus of these efforts is ensuring open access to scientific publications, utilizing platforms such as the Open Journal Systems (OJS) and Open Monograph Press (OMP). UNIRI's institutional repositories are connected to Croatia's national database, Dabar, which adheres to international standards like OpenAIRE and FAIR, ensuring a broader reach for research output.

UNIRI's Open Science efforts are supported by several internal units, each playing a distinct role. UNIRI library's Centre for Open Science and Scientific Information Management (COZ) provides the essential infrastructure for managing scientific data, promoting Open Science, and supporting the implementation of the university's Open Science Policy. On the other hand, the Science Outreach Centre (SOCRI) strengthens connections with the general public.

UNIRI's Role in the OPUS Project

As a pilot institution in the Open and Universal Science (OPUS) Horizon Europe project, UNIRI is taking significant steps to promote Open Science. Within OPUS, the Rectorate coordinates efforts implemented by COZ, SOCRI, and the Faculty of Law (PRAVRI), which hosts the UNIRI OPUS pilot cohort. While the first two units ensure pilot activities are available to all early-career researchers and sometimes all UNIRI academics, PRAVRI focuses on embedding Open Science within the social and legal sciences targeting specific needs of the cohort by offering group and

one-on-one coaching and training to address specific Open Science challenges in legal studies.

The OPUS pilot primarily targets doctoral students and early-career researchers, focusing on three main areas:

- **Research**: Supporting open-access publishing and transparent research methods.
- **Education**: Building skills for clear science communication and public engagement.
- **Valorization**: Promoting the dissemination of research to a wider audience and encouraging societal impact.
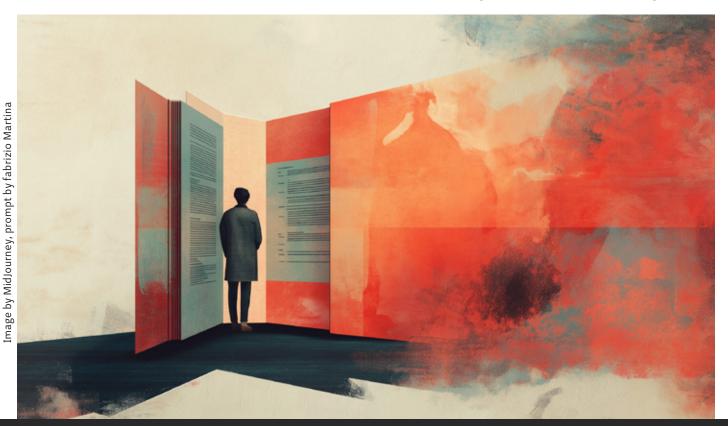
To drive these goals forward, UNIRI has created a comprehensive action plan aimed at institutional reforms and better research evaluation. The plan prioritizes recognizing and rewarding Open Science practices, ensuring that transparency and openness are valued in the academic environment.

The national OS infrastructure in Croatia is already well developed, thus allowing UNIRI's efforts to focus on training and education **to equip** its **academic community with** the

right **skills and resources** and address the needs of the ECRs as our primary OPUS target group. The UNIRI OPUS Action Plan features several initiatives, including e.g. workshops on publication drafting to help researchers prepare open-access articles, public speaking training to improve communication of complex scientific topics to the general public, targeted OS skills development training for ECRs, and much more.

UNIRI's targeted activities are not limited to the academic community; they aim to change the research culture by, for example,

- Hosting Open Science cafés, informal gatherings where researchers discuss their work in a relaxed setting.
- Expanding institutional repositories to improve visibility and impact.
- Encouraging public speaking on science topics to make research widely considered and accessible.

Responding to the needs of ECRs, UNIRI has established EduDoc, a central Open Science resource hub, specifically focused towards doctoral candidates and ECRs in general. EduDoc is integrated with COZ, making

Image by Midjourney, prompt by fabrizio Martina

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it a go-to resource for Open Science best practices, guidelines, and event information.

Public engagement is at the heart of UNIRI's valorization activities in this project. OPUS Pilot Valorization efforts directed towards public engagement are managed by SOCRI, which plays a critical role in bridging the gap between the academic world and the wider community. Through events, workshops, and collaborative projects, SOCRI fosters scientific literacy and encourages a dialogue between researchers and the public. SOCRI also hosts Virtual SOCRI, an online repository that provides open access to outreach activities through videos and interactive material.

Leading the Way in Open Science

UNIRI's efforts are making a tangible impact, not just within our own institution, but in the broader movement towards Open Science. By championing a culture of transparency,

openness, and collaboration and by actively contributing to the work of the Coalition for Advancing Research Assessment (CoARA) and engaging in Research Assessment reform activities, the University of Rijeka is setting a new standard in Croatia and beyond.

We lead by example, testifying that commitment to Open Science is about more than just adopting policies—it is about transforming the way research is conducted, shared, and valued. Through our pioneering initiatives, UNIRI is demonstrating that Open Science is not just the future of research, but its present, and we are leading the way in making that future a reality. Join us!

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Special Issue
Open Science in its many forms

Photo by Scott Murphy

A simple yet profound idea: From journal club to transforming scholarly practices

Traditional peer review is often criticized as opaque, biased, and disproportionately controlled by a few for-profit publishers. In this interview, Daniela Saderi shares her journey from a journal club to leading a nonprofit organization, whose mission is to make scholarly peer review more equitable, open, and collaborative.

Bionote

Daniela Saderi is the Co-Founder and Executive Director of PREreview, an organization with the mission to bring more equity and transparency to the evaluation of research content, giving systematically excluded researchers better ways to find, train, and contribute to peer review. Daniela holds a Ph.D. in Neuroscience from Oregon Health & Science University during which she studied mechanisms of auditory processing in mammals, and she is a former Mozilla Fellow for Open Science 2018/2019.

Could you share some of the key experiences that led you to where you are now?

In 2017, as a Ph.D. candidate, I co-founded PREreview with a vision to make science more open, equitable, and collaborative. The journey began a year earlier at OpenCon 2016, where I was introduced to the transformative world of open science. Surrounded by a passionate community of early-career professionals determined to improve how science is conducted and communicated, I returned inspired to contribute to that change.

The spark for PREreview came from a simple yet profound idea: what if journal clubs could focus not on critiquing research already published in prestigious journals, but on discussing preprints—early versions of research articles that could still be revised? This inspiration, partly drawn from the groundbreaking work of ASAPbio and Dr. Prachee Avasthi, led me to introduce preprint discussions in my department's journal clubs. We documented our insights and shared them directly with the authors, laying the groundwork for what would become PREreview.

In my final year as a student, a Mozilla Fellowship for Open Science provided the resources and connections needed to bring this idea to life. Together with Dr. Samantha Hindle and Dr. Monica Granados, we built PREreview from the ground up, fueled by modest funding and boundless dedication.

What are the challenges of traditional scholarly peer review? How did you plan to address it?

Traditional peer review is often criticized as opaque, biased, and disproportionately controlled by a few Western, for-profit publishers. This system, which determines the fate of global knowledge, is slow to adapt and rewards prestige over meaningful contribution. Our mission was clear: to democratize scholarly communication by enabling researchers from all backgrounds, career stages, and geographical locations to contribute constructive feedback to preprints. Our platform—the first free, open-source, journal-independent, and server-agnostic space for preprint reviews—empowers researchers with an ORCID iD to share their feedback constructively.

We emphasize training, collaborative review events, and community-developed resources to help researchers deliver constructive and actionable feedback. Our initiatives encourage critical reflection on biases, promote equity, and foster a sense of shared responsibility in evaluating scientific work.

Were there any challenges along the way?

Early funding was limited, allowing only one team member (myself) to work full-time. Building the platform involved iterative trial and error, requiring time, resources, and significant community input. Over the past two years, we emphasized consultation with our community. These efforts, supported by fair compensation for participants, ensured that the platform met the diverse needs of its users.

What would you tell others who want to improve current practices?

Partnerships and funders who believed in our mission were instrumental in sustaining and scaling our work. PREreview is a testament to the power of a shared vision, community collaboration, and resilience. The journey has been challenging, but it has also been profoundly rewarding. Every review published, every researcher trained and empowered brings us closer to a future where science belongs to everyone.

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Special Issue
Open Science in its many forms

Insights about Open Science development in Romania: a Funding Agency perspective

Photo by Alina Irimia

Discover how a main funder of competitive research is reshaping Romania's research landscape through Open Science. From leading national strategies to aligning with global initiatives, UEFISCDI pioneers innovative practices, fostering collaboration. Learn about their milestones, challenges, and vision for a future where Open Science and equitable research assessment drive scientific excellence.

Bionote

Alina Irimia leads the Open Science (OS) projects at UEFISCDI and is an OS policy expert at the UNESCO Chair for Science and Innovation Policy at SNSPA-Bucharest. Over the past 8 years, she has collaborated with prominent actors supporting OS and since 2023 serves on the CoNOSC Board. From 2019 – 2022, she coordinated the development of the National Strategic Framework for OS in Romania, embodied in the White Paper on the Transition to Open Science 2023-2030. Passionate about the philosophy and sociology of science, Alina obtained her PhD in sociology, in 2020, at the University of Bucharest.

What is the role of UEFISCDI, a funder of competitive research, in shaping Open Science in Romania?

The Executive Agency for Higher Education, Research, Development, and Innovation Funding (UEFISCDI) in Romania is a prominent force in promoting Open Science. As Romania's primary funding organization for competitive research, UEFISCDI plays a dual role: funding research and advising policies. Additionally, UEFISCDI leads Romania's open

science efforts as the country's central hub, guiding the development and application of open science policies and practices.

Since 2018, UEFISCDI has spearheaded efforts to guide and support Romania's Open Science journey. It established the Open Science Knowledge Hub (OSKH) and led the development of the National Open Science Strategic Framework, which includes the White Book of the Transition to Open Science and a specific objective within Romania's National Strategy on Research, Innovation, and Smart Specialisation (2022–2027). Furthermore, UEFISCDI's recommendations have been integrated into the National Plan for Research, Development, and Innovation, the primary instrument for implementing these strategic recommendations.

Over the past few years, I have witnessed a remarkable shift in the perception among research stakeholders in Romania. Initially, there was a natural skepticism, mainly due to a lack of understanding and resources to support Open Science initiatives. However, as awareness has grown, we've seen increased interest and participation. Additionally, the global momentum towards Open Science has also influenced the Romanian landscape.

How does the Agency support researchers in the adoption of Open Science?

To support researchers in the transition, UEFISCDI has developed and distributed resources on topics such as open access, citizen science, and FAIR Research Data Management. These materials are accessible through the national Open Science portal. UEFISCDI has also launched an open science community on its BrainMap platform to enhance collaboration, and organizes regular webinars and events, fostering awareness, best practices, and capacity-building across Romania's research ecosystem.

How does the Agency align and partner with European Initiatives to strengthen Open Science and Research Assessment in Romania?

UEFISCDI's commitment to open science is bolstered by its involvement in several European and international initiatives. It collaborates with organizations such as Science Europe, and UNESCO, mainly through the UNESCO Chair of Science and Innovation Policies-SNSPA, COARA, OpenAIRE, and the Research Data Alliance (RDA), and serves as an observer in the EOSC Association. These collaborations provide UEFISCDI with access to international standards and best practices.

At present, a significant movement towards reforming research assessment is happening, with CoARA as a lead initiative. As an early signer of the Agreement on Reforming Research Assessment (ARRA), UEFISCDI has actively fostered specific dialogue through workshops and discussions. We believe that practical support in the transition to more holistic assessment methods should be focused on showcasing practices and ongoing work from various countries to demonstrate the tangible benefits of such a reform, while also co-creating tailored tools and guidelines to specific contexts. In line with these, UEFISCDI recently organized an international conference in Romania dedicated to rethinking research assessment while considering Open Science. The event featured discussions on recent developments and policies, focusing on different perspectives and case studies from practice.

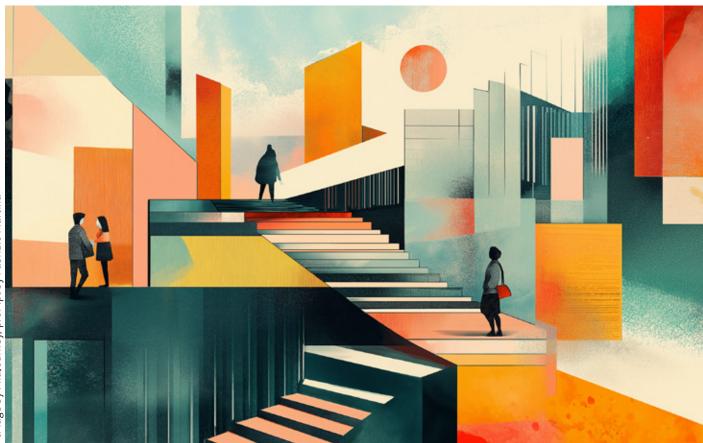## What is next in terms of support for Open Science in Romania?

As a participant in the OPUS project, UEFISCDI is pioneering new requirements and research assessment criteria within a specific funding program, including mandatory Data Management Plans aligned with FAIR

principles for the funded projects - a first for Romania. UEFISCDI is using the OPUS Research Assessment Framework (RAF) to pilot these new assessment criteria, allowing it to navigate the challenges of institutional change while adapting to new open science policies. Moreover, in synergy with another European project - GraspOS - UEFISCDI is developing and will trial a new researcher profile, embedding Open science practices, based on the OPUS RAF.

On another level, UEFISCDI recently started a new project with a specific activity to co-create with researchers (especially ECRs) new recommendations for adapting the national curricula and training programmes to new professional profiles and skills required for Open Science (e.g., data stewards, data technicians, legal experts on rights retention or data security).

Through support for policy making, capacity-building, and practical implementation pilots (like in the OPUS or GraspOS), UEFISCDI aims to create a research landscape where researchers operate in a more open, collaborative, and innovative scientific environment. For this, it is essential to involve stakeholders directly in the transition reforms. Engaging researchers, policymakers, and university administrators in co-creation processes ensures that the solutions are not only accepted but also effectively implemented.

Alina Irimia in

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Image by MidJourney, prompt by Fabrizio Martina

Special Issue
Open Science in its many forms

Photo by Annelies Van de Ven

Unlocking research: a journey from archaeology to open science policy

Annelies' journey shows how researchers can transform their own experiences in the academic system into meaningful changes. Former researcher, now a policy officer at the MSCA Unit of the European Commission, one of her aims is to make open science requirements (such as open access publishing or open data) beneficial to researchers rather than burdening them.

Bionote

Annelies recently joined the European Commission's MSCA team as a Policy Officer responsible for COFUND, Open Science and Synergies. Prior to commencing her current role, she was an FNRS-funded postdoc working at the intersection of archaeology and collections management. Her move to the policy role was motivated by her work as a representative of the scientific staff of UCLouvain and as a slow science advocate co-organizing the inter-university doctoral school on the future of academic research.

Experiences in public archaeology led Annelies to question contemporary academic research practices and their impact on society. As a Master's student, Annelies joined archaeologists on the Scottish coast, working with local communities to monitor heritage sites damaged by erosion [1]. Community members actively contributed observations and photos, but also their memories and connections to these sites. This led to the organic growth of other research initiatives. Engaging with knowledge in this way meant that "I learned so much faster than I would have just sitting behind my desk," Annelies reflects.

Photo by Prof. Paul Zimansky

Annelies contributing to excavations at Ur during her doctorate

Annelies' subsequent research journey across countries and continents revealed an "amazing diversity of ways to create impact". During her PhD in Australia, an interdisciplinary supervisory team - an archaeologist, a historian, and a philosopher-playwright [2] demonstrated her unique approaches to creating impact, through museum exhibitions, school outreach, press, theatre and poetry. This motivated Annelies to work as a curatorial assistant [3], co-run a humanities outreach project [4], and engage with the media [5]. However, Annelies became frustrated seeing that those "incredible and innovative approaches" to research impact were undervalued by publication-oriented research models. She also witnessed the negative effects on careers and motivation of researchers.

"If you are trying to constantly publish things, that doesn't mean you're actually advancing science faster." - Annelies reflects. When she returned to her home country, she searched for a like-minded community and joined "Slow Science in Belgium"[6], a platform that enabled researchers to discuss the alternatives to this publish-or-perish model and how universities can be a part of this change.

For Annelies, the path emerged through advocacy during her postdoc at the UCLouvain. Her supervisor actively supported time for policy engagement, and Annelies "caught this bug" from her colleagues. As a representative of the scientific staff (CORSCI)[7], Annelies focused on promoting equity, diversity and inclusion at the university, pushing for policies

that supported international researchers and parents. She co-led a lobbying effort by the CORSCI that enabled early career researchers to recuperate project time taken for parental leave [8]. Annelies found the work of supporting early career researchers deeply motivating. This inspired Annelies' next step, a 5-month traineeship at the European Commission, where she found her values reflected in the international and interdisciplinary MSCA team. When at the end of the traineeship, the position of the policy officer opened, it felt like a preparation meeting opportunity.

Since September, Annelies has worked at the MSCA Unit, supporting excellent research training so researchers can build expertise, pursue diverse career opportunities, and advance scientific knowledge. One of her files is Open Science in the MSCA. Going from an advocate to a policy officer was a big step, but she was able to count on colleagues from DG RTD's unit for open science and research infrastructures to guide her, once again reinforcing her belief that collaboration is key to change [9]. In this way, she is joining the commission's efforts to make open-access publication more accessible (pun intended), through considering secondary publishing rights at the European level [10] and creating a layered institutional support system [11].

Her role also involves open data and AI, supporting researchers and institutions to share and follow best practices in effective and ethical use. As part of her doctorate, Annelies undertook social media analysis to understand the diversity of public perceptions of archaeological objects. During this process, she encountered many challenges as a non-specialist attempting to wrangle data, secure GDPR and ensure re-usability of her work, so she is passionate about making the process smoother for other researchers. "This is somewhere where I can see myself making positive change," - she concludes.

For researchers looking to embrace open science, Annelies echoes the message of Toma Susi [12] - "We are not asking for martyrs for open science," highlighting that systemic change needs collective action, not sacrifice. Instead, she suggests practical steps of starting with an ambitious vision and then breaking it into manageable steps to apply slow or open science principles in projects. Annelies advocates for seeking supportive mentors, and experts within research institutions and communities of practice like MCAA, where members actively work to improve research culture.

Now as an MSCA policy officer, Annelies sees an immense value in close collaborations between MCAA and MSCA, through shared initiatives to develop an R&I ecosystem that centres researchers. Researchers often underestimate the relevance of their expertise to policymaking, she notes. Annelies encourages everyone to look at how their passion for research can be linked to opportunities for promoting positive structural change. Every journey of transformation, looking back, is made of small steps. What will be yours?

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Accessibility Statement

The MCAA believes in a society based on diversity. A society where diversity is the norm, not a deviation. A society where diversity is a strength, not a weakness. Access barriers are created by a society that does not acknowledge the value of diversity. Diversity and access are foundational elements of the flourishing of the research endeavour.

As a community of researchers, the MCAA is committed to increase the accessibility of its products, services, and events. Under the leadership of the Editorial Team of the Communication Working Group, with the support of other Working Groups and the MCAA Board, the MCAA has been promoting a series of actions aimed at increasing the inclusivity of its community and reducing access barriers.

Since the June 2021 issue, the MCAA Newsletter has a new layout. The new design should make the reading experience more accessible by reducing a number of barriers our readers may face.

The new layout complies with many requirements of major print and digital accessibility standards and guidelines. For example, background and foreground colours were selected and paired so as to fulfil the AAA level requirements for colour contrast devised by the Web Content Accessibility Guidelines (WCAG 2.1). Colour selection and pairing also complies with requirements for colour blindness. The text is not justified in order to keep the spacing between words consistent and regular in the entire text. Line spacing and font size were revised and increased too. Each macro-section is identified by a different colour so as to provide the reader with a map of content organisation. The layout adopts TestMe, a font inspired by the Design for All principles. Last but not least, the PDF file now complies with PDF accessibility requirements and can be used by screen readers.

Editorial information

About

The MCAA Newsletter is the main communication channel for and about the MCAA community. It is a publication venue for science communication and public outreach. Its main aim is the dissemination of information about past and current MSCA projects, as well as activities of MCAA Chapters and Working Groups, events, and members' achievements.

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Instructions for submission

Authors interested in submitting an article should read the Editorial Guidelines and the Editorial Rules, and then submit an article **exclusively** through the form available on the MCAA Newsletter website.

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