

CONFERENCE

Bridging Disciplines: Advancing Research Data Management for Collaborative Innovation

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Bucharest, Romania



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Rationale:

With research becoming increasingly data-driven and interdisciplinary, the need for structured, well-documented, and accessible data is paramount. This international conference brought together thought leaders from various domains to discuss the critical role of metadata, data stewardship, and cross-domain integration in improving data management, sharing, and reuse. Central to these discussions were the concepts of reproducibility, data citation, and data access, all of which play vital roles in ensuring that research data is properly managed, credited, and available for future use.





The conference highlighted the importance of data stewards in maintaining data quality and integrity, ensuring that data can be accessed, cited and reused efficiently.

The discussions centered on the importance of reducing technical barriers to data management, enabling easier compliance with the Data Management Plan and ensuring that data is accessible to all researchers, regardless of technical capabilities. Metadata underpins research workflows by enhancing data interoperability and accessibility, key to compliance with the FAIR principles (Findable, Accessible, Interoperable, Reusable).

With standards like DDI-CDI (Data Documentation Initiative - Cross Domain Integration), the conference also focused on the importance of integrating data across different disciplines to maximize its usability.

The event created a framework for dialog and collaboration between researchers, data managers or infrastructures, decision makers, as a basis for developing and establishing common practices and policies.

Welcome speeches

The conference opened with welcome speeches from Andrei Alexandru, President of the National Authority for Research, and Adrian Curaj, Director of UEFISCDI.

Both highlighted the significance of this conference for Romania's research and innovation ecosystem. The president of Romania's National Authority for Research, emphasized the importance of research and innovation as key drivers of economic growth. He also discussed the new legislation supporting researchers' career paths and collaborations between research organizations and entrepreneurs to foster sustainable economic growth.

UEFISCDI Director highlighted the role of the EAA and Norway Grants in funding the conference and their partnership with Romania in advancing international research initiatives, pointing also the role of the funding agency in the national research and innovation landscape, emphasizing the commitment to open science and the fair principles for research data management.



Session 1

Science Clusters

This session examined the role of science clusters in connecting diverse research domains, fostering data interoperability, and creating a unified knowledge base to support evidence-based policymaking.



Chair: Darja Fišer
Director, CLARIN



Anca Hienola
Finnish Meteorological Institute



Jonathan Ewbank
ERINHA



Antje Keppler
EuroBioimaging



Fabio Feudo
Knowledge and Innovation

The panel highlighted the critical role of ERICs in shaping the European research landscape. By pooling national resources and offering open access to data and services, ERICs have enabled interdisciplinary collaboration and strengthened Europe's global scientific standing. While their sustainability might now be at risk due to the discontinuation of EU cluster funding, which has long supported coordination across scientific domains, a recurring concern was the gap between research infrastructures and the broader research community. Many researchers are still unaware of the tools and services available to them, often due to limited outreach capacities and institutional barriers. Addressing this requires enhanced training, increased FAIR data stewardship, and stronger support from universities and funding agencies to ensure wider adoption and long-term impact.

Key insights

Research Infrastructures (RI) are seen as pillars of scientific advancement, enabling access to cutting-edge equipment, data, and collaborative networks, and they are essential for maintaining competitiveness in research and for responding to global challenges. In this context, several speakers emphasized the strategic role of aligning Romania's national research infrastructure strategies with the European Strategy Forum on Research Infrastructures (ESFRI), noting that participation in pan-European initiatives enhances visibility, access to funding, and scientific collaboration.

However, the panel also identified several challenges and needs, pointing out fragmentation, insufficient coordination, and lack of long-term funding as key barriers. In response, there was a clear call for sustainable funding models, better integration into education and industry, and stronger governance mechanisms.

Looking ahead, future directions and recommendations include reinforcing the National Roadmap for RIs with regular updates and evaluations, investing in human capital, and encouraging interdisciplinary use of existing infrastructures. Additionally, the development of a more robust monitoring system for usage and impact assessment was highlighted as essential to ensuring effectiveness and long-term success.



Session 2

European Open Science Cloud

The session explored EOSC's role in fostering an open and federated research ecosystem, enabling seamless data sharing and interoperability across disciplines to drive collaboration and innovation.



Chair: Sally Chambers
Director, DARIAH



Jan Hrušák
ESFRI



Ingrid Dillo
DANS



Matti Heikkurinen
CODATA



Christian Schuster
Transylvania Digital
Humanities Centre

It was introduced the European Open Science Cloud (EOSC) as a federated ecosystem of services and data infrastructures designed to accelerate open, collaborative, and high-quality research across Europe. Unlike a new infrastructure, EOSC aims to interconnect existing services through trusted "nodes" that offer FAIR data, training, and compute resources. A major emphasis was placed on inclusivity, lowering entry barriers, and voluntary participation while ensuring data quality and long-term sustainability. Panelists highlighted persistent communication gaps between policymakers, infrastructure providers, and researchers especially at institutional levels, underscoring the need for stronger engagement and governance to make EOSC truly researcher-friendly.

Key insights

The session introduced EOSC not as a new infrastructure or cloud service, but as an enabling framework for interoperability, FAIR data sharing (Findable, Accessible, Interoperable, Reusable), and collaboration across disciplines and borders.

It was emphasized the crucial role of trustworthy digital repositories in sustaining FAIR data: repositories ensure technical quality and long-term preservation; there is a need to professionalize and standardize repositories; projects like FAIR-IMPACT and FIDELES aim to strengthen the repository ecosystem and develop a trusted network.

The research community perspective is reflecting that researchers often feel disconnected from EOSC developments, institutional efforts are emerging to build local services, but national-level support and communication are lacking, researchers need clearer guidance and integration pathways to engage meaningfully with EOSC.

From the ESFRI perspective it was highlighted the need for high-quality, trusted data; alignment between policy, infrastructure, and researcher needs; a holistic and evolutionary approach to building EOSC.

Regarding the future outlook, the expectation is that within five years, EOSC will enable researchers to seamlessly connect data, tools, and outputs in reproducible workflows, enhancing collaboration and innovation across the continent.



Session 3

Data Documentation Initiative (DDI) Interoperability

This session explored DDI interoperability, highlighting how DDI metadata can enhance data description, data integration and cross-domain research collaboration.



Chair: Darren Bell

Director of Technical Services, UK Data Services



Jared Lyle
DDI Alliance



Wendy Thomas
DDI Expert



Olof Olsson
Swedish National
Data Services



Hilde Orten
SIKT



Daniel Gillman
Data Unchained LLC

This session emphasized the critical role of metadata standards in achieving true interoperability across research domains. Speakers from the DDI Alliance showcased how DDI products such as Codebook, Lifecycle, and the newly released Cross-Domain Integration (CDI) enable structured, machine-actionable metadata, crucial for data discovery, reuse, and integration. Challenges remain, including inconsistent terminology use, lack of developer-friendly tools, and limited adoption of controlled vocabularies. The panel called for harmonized metadata practices and urged funders to require common standards, noting that FAIR principles alone are insufficient without robust, shared specifications.

Key insights

While previous sessions examined broader infrastructure themes, this discussion shifted to the practical and technical dimensions of making data interoperable across repositories and disciplines.

This session highlighted the development and role of the DDI standard, which was created to address inconsistent social science metadata and has since become a global standard used in over 80 countries. DDI enables metadata to be encoded in machine-readable formats, supporting data discovery, reuse, and long-term preservation through a community-driven, open-access model.

The session covered challenges to interoperability, including inconsistent application of standards and the need for clearer terminology and improved documentation. It also featured a case study on Sweden's national metadata portal and emphasized the importance of coordinated technical, institutional, and policy efforts to support practical metadata use in real-world research.

Speakers reflected on what is needed to truly realize the vision of interoperable data ecosystems like EOSC. They advocated for clearer policies from funders, standardized metadata practices, and greater investment in professionalizing digital repositories. A recurring theme was the need to reduce the technical burden on individual researchers by providing intuitive tools and interfaces, as well as institutional support. The panel also questioned the ongoing emphasis on FAIR assessment tools, suggesting that real progress depends more on practical metadata quality and adoption of shared standards than on numerical scores.



Session 4

Life Sciences

Collaborative interfaces between Scientific Domains and Disciplines: this session explored data interoperability in the life sciences and environmental research, highlighting strategies for integrating diverse datasets to address global challenges.



Chair: Christos Arvanitidis
CEO, LifeWatch



Michael Mirtl
eLTER



Nikos Kyrpides
Joint Genome
Institute, US



Hugh Shanahan
Centre for Systems and
Synthetic Biology UK



Mike Elliott
University of Hull



Mihai Adamescu
University of Bucharest

Speakers presented concrete examples highlighting the value and complexity of cross-disciplinary collaboration. From the acceleration of Open Science in EOSC to the integration of ecological and social data by eLTER and University of Bucharest, each presentation showcased innovative methods and real-world applications. Discussions ranged from data governance and AI-driven insights to stakeholder engagement and policy-making tools like the bow-tie analysis and horrendrogram. The panel concluded that while technical and methodological challenges persist, the greatest barrier remains cultural overcoming disciplinary language and mindset differences to truly work together.

Key insights

The session explored how to break scientific silos, connect disciplines, and make science work meaningfully for society. It began with a philosophical reflection on the origins of knowledge, tracing the fragmentation of science back to its ancient unity. A conceptual framework, the “bow-tie” model, was introduced to illustrate how shared societal goals can anchor interdisciplinary efforts, with challenges and impacts mapped on either side. This model set the tone for a series of concrete, field-based examples.

One presentation demonstrated how integrated environmental research blends natural and social sciences to produce actionable, cross-disciplinary insights. Another emphasized the urgency of connecting vast biological and environmental datasets, warning that without infrastructure, critical data may remain underutilized. A different perspective focused on translating scientific findings into policy through practical tools and clear communication strategies. The conversation then shifted toward global equity, highlighting the barriers that limit access to research infrastructures in less-resourced regions and calling for truly inclusive systems.

The session concluded by grounding the discussion in community engagement and real-world application. A final contribution introduced the concept of “transitionality” a deeper form of interdisciplinarity that includes policymakers, local communities, and traditional knowledge holders. The overarching message was clear: the future of science depends not just on technological or disciplinary advances, but on inclusive, purpose-driven collaboration that serves both people and planet.



Session 5

European Social Survey (ESS) interoperability

This session highlighted the European Social Survey (ESS), showcasing its role in providing high-quality, cross-national data to support social science research and evidence-based policymaking.



Chair: Rory Fitzgerald
Director, ESS



David Richter
SHARE



Ruxandra Comănanu
City University



Diana Zavala Rojas
Universitat Pompeu Fabra



Hilde Orten
SIKT

The speakers explored the growing trend of interdisciplinary collaboration within European research infrastructures, focusing on how social science projects are uniting to address common challenges. It highlighted various initiatives aimed at harmonizing data, fostering partnerships, and making research more accessible and relevant to policy-making. Through examples of projects that integrate social, environmental, and policy data, the session emphasized the importance of collaboration in advancing science and creating meaningful impact across different sectors. The discussions underscored the need for co-development, transparency, and shared goals to overcome barriers and drive progress in social science research.

Key insights

Session 5 opened with a spotlight on the European Social Survey (ESS), a flagship European Research Infrastructure Consortium (ERIC) that has been collecting high-quality, cross-national data on public attitudes and behaviors since 2002. With over half a million interviews across 39 countries and more than 7,000 academic publications leveraging its data, ESS continues to be a vital resource for social scientists and policymakers alike.

But this session was about more than just ESS. It was a deep dive into interoperability and collaboration - both within the social science community and beyond, into environmental and policy-oriented research. The session showcased how European social science infrastructures are uniting to tackle shared challenges through projects like Sustain 2, Chronos, and Infra for NextGen, aiming to harmonize data, engage youth, and enhance policy relevance. Collaborative efforts such as SoGreen are integrating social and environmental data to understand the impact of green policies across life stages, while PAUL demonstrated how linking urban attitudes with environmental metrics can inform local governance. The EOSC Future project further expanded integration by combining ESS data with environmental indicators, introducing over 150 new variables and a provenance tracking tool to ensure transparency.

The session closed with a call to action, especially for underrepresented countries like Romania, to join the European research infrastructure community and contribute to shaping the future of data-driven, evidence-based policymaking



Session 6

Data stewardship

This session explored data stewardship, emphasizing best practices for managing, curating, and preserving data to ensure accessibility, quality, and long-term usability across domains.



Chair: Irena Vipavc Brvar
Arhiv Družboslovnih Podatkov, Slovenia



Liise Lehtsalu
RDA Europe



Louise Bezuidenhout
Center for Science and
Technology Studies



Simon Saldner
DANS



Rasmus Kvaal Wardermann
Research Council of Norway

Samrit Mainali
Université
Paris-Saclay

This session focused on the evolving role of data stewards in open science, exploring the challenges they face in terms of career development, job security, and institutional recognition. It highlighted efforts across Europe to create sustainable career paths for data stewards. The speakers also discussed initiatives aimed at unifying and certifying data stewardship training, as well as the importance of integrating technical, ethical, and policy considerations into data management. Insights on the need for stronger institutional support and the critical role data stewards play in shaping effective open science practices were also shared.

Key insights

The session began with the chair, who, with over 20 years of experience in a national social science data archive, provided a comprehensive overview of how Slovenia has embraced open science. Through legislative changes, strategic funding, and the establishment of national infrastructures, Slovenia is actively advancing towards a more open and data-responsible research environment.

The discussion then shifted to the challenges faced by data stewards, focusing on the lack of formal career paths and job security in this crucial role. In response, a working group was launched to define career tracks for data stewards, with an emphasis on creating sustainable career opportunities.

The session also covered efforts in other countries to unify data stewardship training and the importance of technical, ethical, and policy considerations in data management and stewardship.

The panelists recognized the need for stronger institutional support and better recognition of the critical role data stewards play in research. The panel concluded by reinforcing the idea that without addressing these challenges, the sustainability of open science initiatives could be at risk.



Final panel

The panelists summarized the main points of the preceding sessions and explored possible ways to link data from multiple domains and create a coherent image for the policy makers.



Chair: Adrian Dușa
Romanian Social Data Archive



Bonnie Wolff-Boenisch
Director, CESSDA



Darja Fišer
Director, CLARIN



Sally Chambers
Director, DARIAH



Christos Arvanitidis
CEO, LifeWatch



Diana Zavala Rojas
Universitat Pompeu Fabra



Jared Lyle
DDI Alliance



David Richter
SHARE

The conference concluded with a series of key reflections on how research can better inform policymaking and address global challenges. Participants emphasized the importance of making research data more accessible and interpretable for policymakers, with a focus on structured metadata and clear data interpretations to improve decision-making. Discussions also highlighted the need for standardized methodologies across disciplines to enhance interdisciplinary collaboration, as well as the importance of advancing FAIR data principles while considering ethical concerns. Barriers to effective data sharing and preservation, including technical, institutional, and political challenges, were identified, with calls for reforms that incentivize data sharing and recognize interdisciplinary efforts.

Key reflections:

Strengthening the Link Between Research and Policymaking

The participants emphasized the importance of making research data accessible, well-documented, and digestible for policymakers. While data availability is essential, structured metadata and clear interpretations are key to ensuring research informs decision-making effectively. Research infrastructures play a pivotal role in facilitating this process.

Addressing Challenges in Interdisciplinary Collaboration

The discussion underscored the need for standardized vocabularies and methodologies across disciplines to improve data interoperability. Building trust between researchers from different fields requires transparency in data collection and analysis. Additionally, panelists called for more career incentives for PhD students and early-career researchers engaged in interdisciplinary work.



Advancing FAIR Data Principles and Ethical Considerations

To maximize the impact of research, panelists advocated for a stronger commitment to FAIR (Findable, Accessible, Interoperable, Reusable) data principles. Ethical concerns, particularly regarding sensitive social science data and AI-driven analysis, must be carefully managed to maintain research integrity.

Overcoming Barriers to Data Sharing and Preservation

Technical, institutional, and political obstacles still hinder effective data sharing. Lack of interoperability, inconsistent metadata standards, and inadequate long-term digital preservation efforts pose significant challenges. Universities and funding agencies must prioritize research assessment reforms that incentivize data sharing and recognition for interdisciplinary contributions.

A Call for Continued Dialogue and Collaboration

The participants concluded that a continued engagement between researchers, policymakers, and funding bodies is required. Research infrastructures must serve as a bridge, ensuring that evidence-based policymaking remains a long-term priority. Additionally, national governments should invest in interdisciplinary research frameworks that foster innovation and sustainability.

The event reaffirmed that research should not only serve academic advancement but also drive real-world impact. By strengthening collaboration between science and policy, the global research community can better address pressing societal challenges.

Bucharest Declaration on Cross-Disciplinary Data Integration for Evidence-Based Policy

Recognizing that today's global challenges, ranging from climate change and public health to economic stability and social cohesion, require informed, evidence-based policymaking,

Acknowledging that scientific research is often conducted within disciplinary silos, limiting the potential for integrated knowledge that can drive effective policy responses,

Emphasizing the need for cross-domain collaboration to harmonize data, metadata, and methodologies, ensuring consistency, interoperability, and accessibility across disciplines,

Affirming that open, high-quality, and well-structured data are fundamental to transparency, reproducibility, and the advancement of science as a global public good,

Considering the rapid evolution of digital infrastructures, data-sharing frameworks, and emerging technologies that create new opportunities for integrating and leveraging knowledge across domains,



The participants of this event, commit to:

Lowering disciplinary barriers by fostering collaboration between the natural, social, and computational sciences to build interconnected, interoperable data ecosystems

Advancing data harmonization through the development and adoption of common standards, ontologies, and best practices that enable meaningful cross-disciplinary research

Enhancing the role of science in policy making by ensuring that data-driven insights are accessible, interpretable, and actionable for decision-makers at all levels

Strengthening the FAIR principles (Findable, Accessible, Interoperable, Reusable) to maximize the impact of research data across domains and sectors

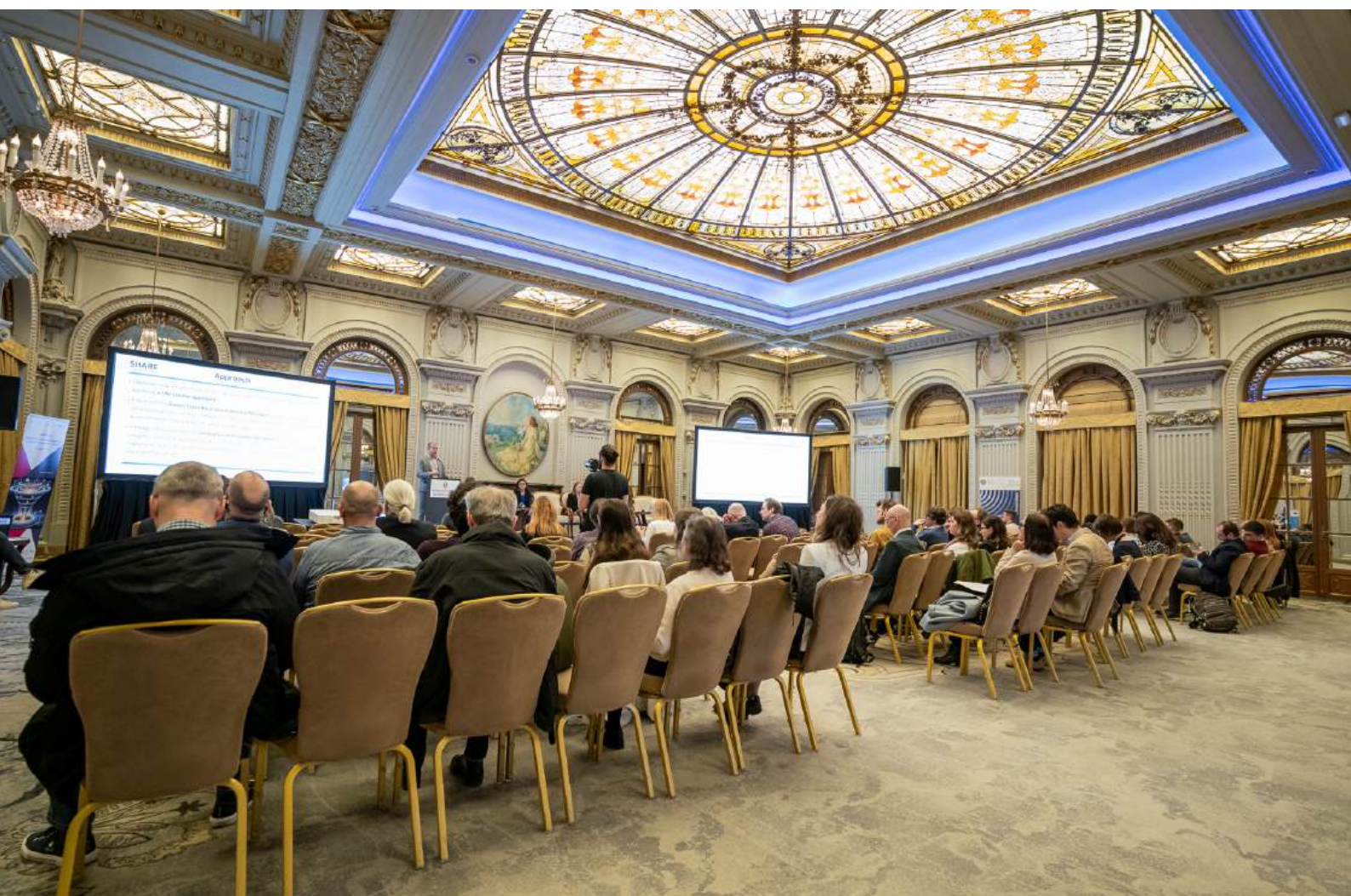
Bucharest Declaration on Cross-Disciplinary Data Integration for Evidence-Based Policy

Promoting inclusive and ethical data governance to ensure equitable access to knowledge, safeguarding scientific integrity and societal trust

Encouraging investment and support from funding bodies, research institutions, and policymakers to develop sustainable infrastructures for cross-disciplinary data integration

Acknowledging that scientific research is often under funded and that some disciplines need support to ensure they can operate at, and beyond the state of the art

We conclude that the future of scientific impact depends on our ability to collaborate beyond traditional boundaries, enabling science to serve society through comprehensive, cross-sectoral, and evidence-based approaches.



Acknowledgement

In the context of funding the project “Widening European Social Survey (ESS) participation – RODA-NSD cooperation in implementing ESS round 9 in Romania”, between 2019 – 2020, under the EEA & Norway Grants, this follow-up event was organized in order to discuss the critical role of metadata, data management and integration across fields to improve the management, sharing and reuse of research data.

The event created a framework for dialog and collaboration between researchers, data managers or infrastructures, decision makers, as a basis for developing and establishing common practices and policies.

Representatives from the Norwegian Center for Research Data, European Strategy Forum on Research Infrastructures (ESFRI), European Social Survey (ESS), Consortium of European Social Science Data Archives (CESSDA), Data Documentation Initiative Alliance (DDI), EOSC, Life Watch (ERIC), ICOS (ERIC), DARIAH (ERIC), eLTER (ERIC), CLARIN (ERIC), SHARE (ERIC) attended the event.