

Connecting data and people



What are the major challenges and opportunities of data for science in the 21st century?

The major global scientific and human challenges of the 21st century can only be tackled through cross-domain research that seeks to answer complex scientific questions through machine-assisted analysis at scale. **For science to address global challenges effectively, high-quality, reliable, transparent data is essential.**

The rapid development and adoption of data science and AI present epochal opportunities and challenges for science. It is essential that the deployment of these technologies serves humanity, and follows the scientific principles of transparency and reproducibility. Data policy in conformance with the values and principles of Open Science, and the FAIR and CARE principles sets a crucial framework to guide activities of various institutions to achieve these objectives.

CODATA's vision is of a world in which science is empowered to address universal challenges through the **transparent, trustworthy and equitable use of data and information.**

CODATA's mission is to **connect data and people to advance science and improve our world.**

As the Committee on Data of the [International Science Council](#) (ISC), [CODATA](#) helps realise ISC's vision of advancing science as a global public good.

What are CODATA's priorities?

Priority 1: Making data work for cross-domain grand challenges

CODATA is leading a ground-breaking initiative, called WorldFAIR+, to provide practical guidance and technical recommendations to ensure that the data needed for interdisciplinary research is FAIR.



- The primary focus of this activity is to implement, refine and extend the Cross-Domain Interoperability Framework (CDIF <https://cdif.org/>) through collaborations with research groups and data infrastructures in all scientific disciplines.



- From June 2026 to May 2029, the CODATA-coordinated CDIF4EOSC project (<https://cdif4eosc.eu>) extend the CDIF recommendations, adding profiles and guidelines, and use case based examples, to form a comprehensive and actionable playbook for FAIR Integration in the European Open Science Cloud (EOSC) and beyond.



- The impact of this work will be to empower interdisciplinary research for grand challenge issues, by improving science systems' capacity to combine data and metadata across domains, and ensuring that ISC's science missions for sustainability are supported by good data practices.

Priority 2: Promoting data policy

CODATA encourages the adoption of principles, policies and practices for FAIR data and trustworthy, equitable and transparent science

- CODATA's work to address this priority is led by the International Data Policy Committee and its ambitious Action Plan which focuses on three priorities: 1) Data Policy for AI; 2) Data Policy for Times of Crisis (including the UNESCO-CODATA collaboration on this topic); 3) Data Policy for the UN Priorities beyond 2030.
- The impact of this work will be to support the effectiveness and ethical dimensions of global science by advancing open and FAIR data policies, and by ensuring that data policy is an integral part of science policy.

Priority 3: Putting data science and AI in service of science

CODATA develops good practices and guidelines for the science of data, particularly to enable transparency and reproducibility in the use of computational methods in a world adapting to the challenges and opportunities of transformative technologies.

- This priority is delivered through CODATA's Task Groups, including the Task Group on Data Quality; through new initiatives to explore AI readiness and good practice for the use of data and AI for science; and through CODATA's collaborations with International Scientific Unions and UN Agencies.
- CODATA is a partner in a number of projects defining AI readiness and good practices in a range of research areas, including social sciences, humanities, public health, climate adaptation and disaster risk reduction.
- The impact of this work will be to accelerate scientific discovery, through the responsible adoption of new technologies, advancing data-science and AI-readiness, while maintaining rigour and reproducibility in the data intensive science of the 21st century.



Priority 4: Building capacity and the foundations of data science

CODATA addresses fundamental issues in the science of data and helps build capacity for data-centric and data-literate science.

- This priority is delivered through CODATA's Task Groups, including those on the Fundamental Constants and the Digital

Representation of Units of Measurement; through the CODATA Research Data Management Terminology; and through the CODATA Connect Early Career collaboration.

- The impact of this work will be to build fundamental capacity for data science in science, through maintaining foundational resources and developing networks of expertise.

Why join CODATA?

By joining CODATA, a National Member makes an invaluable contribution to enable CODATA to execute and expand its ambitious and critical mission, and supports international cooperation.

CODATA is a resource through which its members can articulate and advance their data priorities, engage with a global network of expertise and identify opportunities for collaboration.

Benefits of CODATA membership include:

- Participation in CODATA's high-impact, international priority initiatives.
- Immediate insight into and benefit from CODATA's thought leadership.
- Influence over CODATA strategic initiatives and agenda-setting.

- Participation in CODATA governance.
- Opportunities to collaborate with other CODATA members.
- Facilitation of member-led activities and projects.
- Knowledge sharing of cutting edge data issues with the CODATA expert community.
- Coordination from the CODATA secretariat to achieve members' priorities.

CODATA achieves a considerable return on investment for members by leveraging voluntary effort and collaboration, as well as identifying opportunities to enhance impact through third party funding.

CODATA at a glance:

- CODATA pursues long-term thematic priorities to respond to the challenges and opportunities of data in science for the 21st century:
 - Making data work for cross-domain grand challenges (WorldFAIR+ and CDIF)
 - Promoting data policy
 - Putting data science and AI in service of science
 - Building capacity and the foundations of data science
- CODATA mobilises a network of expertise and acts as a thought leader.
- CODATA is a resource that enables collaboration with international and intergovernmental science organisations.
- CODATA provides its members with cutting edge expertise in data policy and practice, bringing substantial benefits and return on investment for its members.



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