HELMHOLTZ

Open Science

Presentation of the Helmholtz Open Science Office

Speaker

Helmholtz Association
Helmholtz Open Science Office

Event, Date

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Helmholtz Association

Helmholtz Research Mission and Strategy
# Research for Grand Challenges

- Systems solutions for grand challenges based on:

  - Scientific excellence

  - Interdisciplinarity and critical mass

  - long term research programs

- Helmholtz provides a highly attractive environment for talents and brilliant brains

- Profound expertise in large scale research infrastructure

- Helmholtz as a prime strategic partner at the local, national and international level

- Transfer of knowledge into economy and society
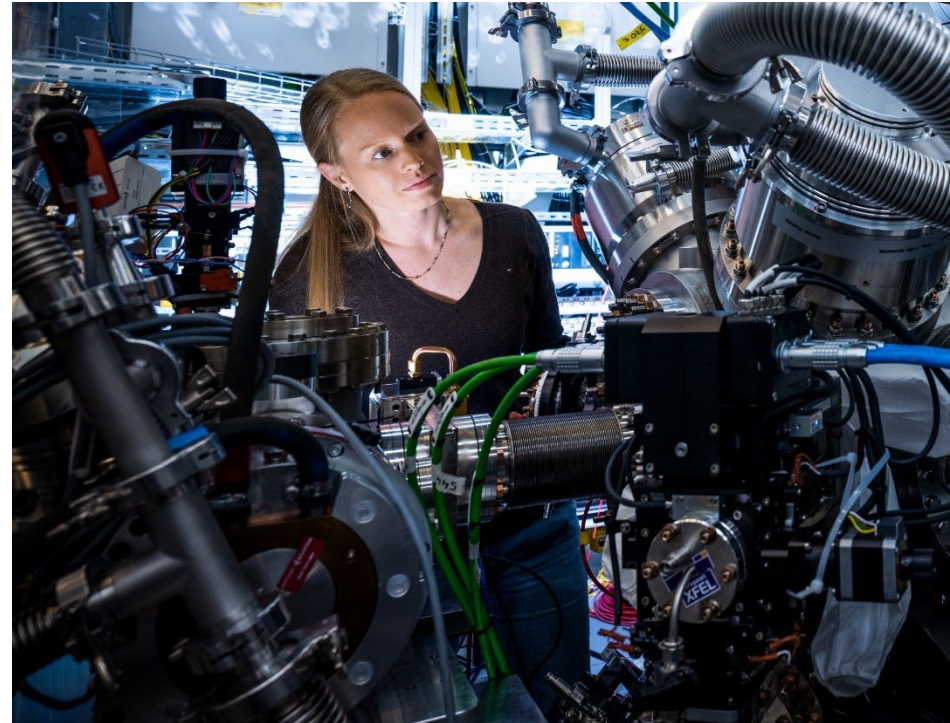
Helmholtz research centers
18 Centers in 6 Research Fields

- Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung (AWI)

- CISPA – Helmholtz Center for Information Security

- Deutsches Elektronen-Synchrotron DESY

- Deutsches Krebsforschungszentrum (DKFZ)

- Deutsches Zentrum für Neurodegenerative Erkrankungen (DZNE)

- German Aerospace Center (DLR)

- Forschungszentrum Jülich (FZJ)

- GEOMAR Helmholtz-Zentrum für Ozeanforschung Kiel

- GSI Helmholtz Center for Heavy Ion Research

- Helmholtz Munich
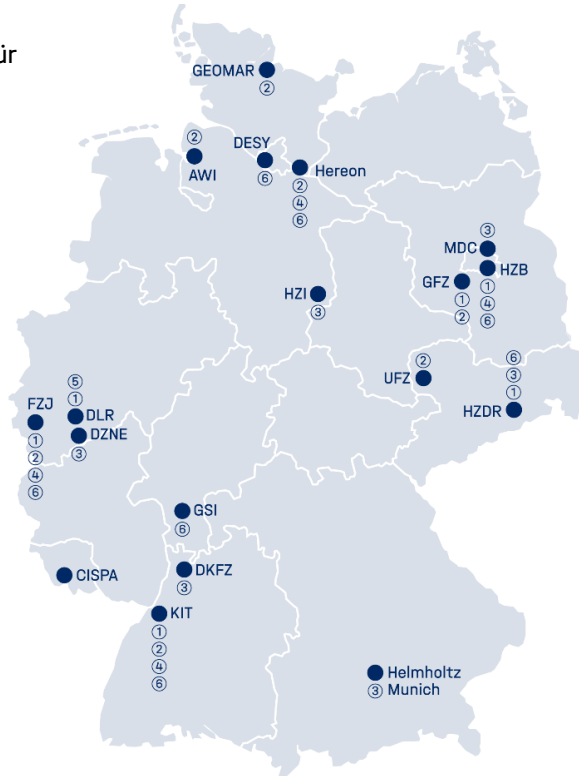
- Helmholtz-Zentrum Berlin für Materialien und Energie (HZB)

- Helmholtz Center Dresden Rossendorf (HZDR)

- Helmholtz Center for Infection Research (HZI)

- Helmholtz Center for Environmental Research – UFZ

- Helmholtz-Zentrum Hereon

- GEOMAR Helmholtz Center for Ocean Research Kiel

- Helmholtz Center Potsdam – German Research Center for Geosciences GFZ

- Karlsruhe Institute of Technology (KIT)

- Max Delbrück Center for Molecular Medicine (MDC)

Research Fields:
(1) Energy, (2) Earth and Environment
(3) Health, (4) Information
(5) Aeronautics, Space and Transport, (6) Matter

The six research fields
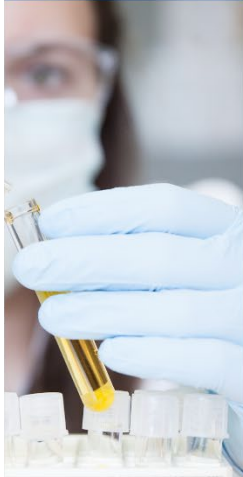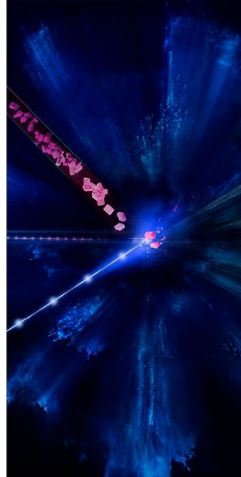# of the Helmholtz Association
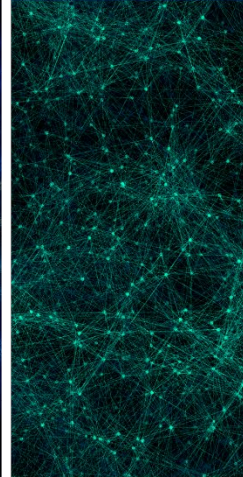
Energy

Earth and Environment
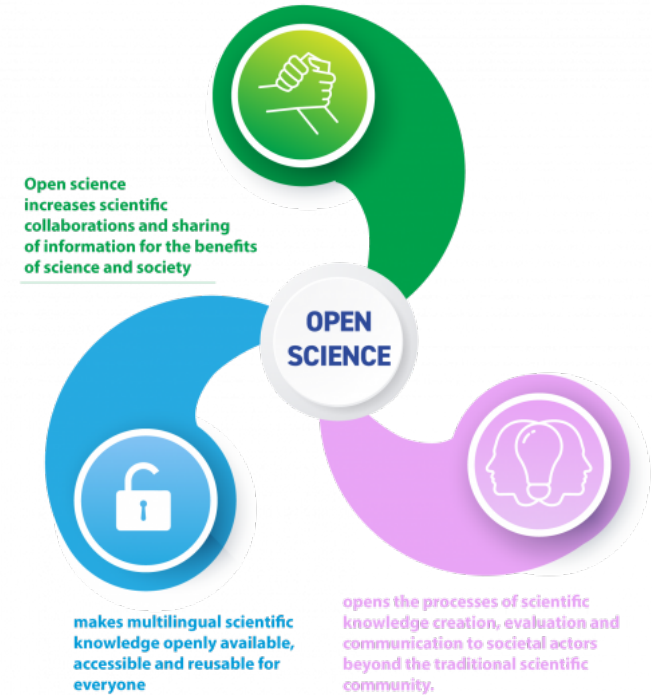
Health

Aeronautics, Space and Transport

Matter

Information

Helmholtz Open Science Office

Open Science

- Cultural change in scientific working methods, organization, and communication.

- Consistently employs digitization to make all components of the scientific process (publications, research data, research software, etc.) open, traceable, reusable, and accessible to everyone (in terms of reducing technical, legal, and financial hurdles).

- Expands transparency and the possibilities for quality assurance, increases the performance of science, and promotes innovations based on scientific findings.

- The development of open science differs in levels of extent in the research fields of Helmholtz, depending on the discipline and respective publication culture.

Open science increases scientific collaborations and sharing of information for the benefits of science and society

OPEN SCIENCE

makes multilingual scientific knowledge openly available, accessible and reusable for everyone

opens the processes of scientific knowledge creation, evaluation and communication to societal actors beyond the traditional scientific community.

Source: UNESCO

Open Science at Helmholtz

- Open Science is an important cross-cutting topic with numerous points of contact

- In the Centers:
  - Digital transformation, research infrastructures, libraries, data centers, transfer, sustainability, Citizen Science, etc.

- In the entire Association:
  - Digital transformation, KPIs, incubator platforms, Initiative and Networking Fund, transfer, etc.

https://www.helmholtz.de
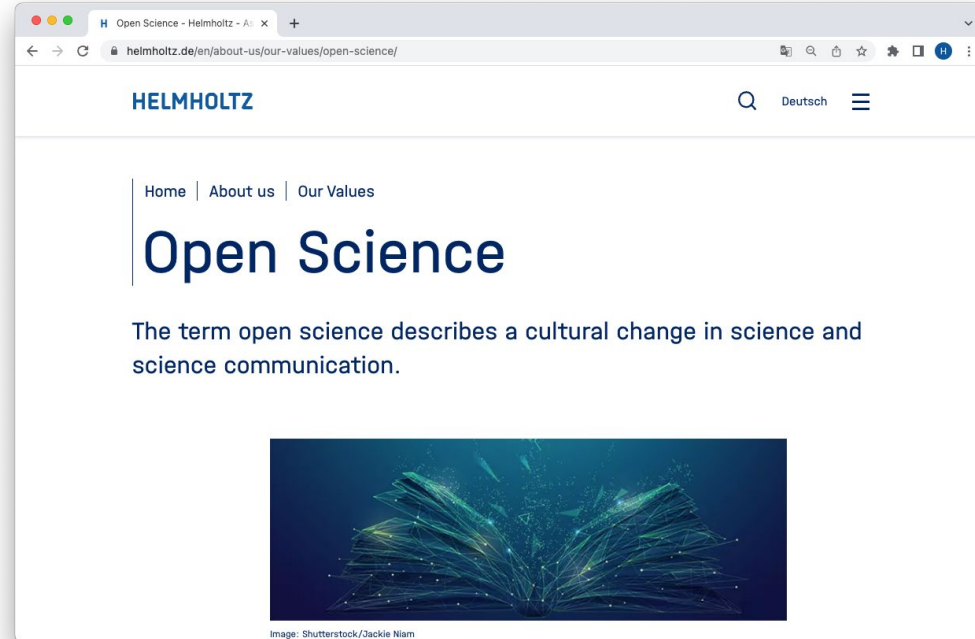
Open Science at Helmholtz

- Our core topics

  - Open Access – access to and re-use of scientific text publications

  - Open Research Data – access to and re-use of research data

  - Open Research Software – access to and re-use of research software

  - National and international network concerning open science

https://os.helmholtz.de

Milestones

2003
- Helmholtz sign "Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities"

2005
- Foundation of "Helmholtz Open Access Project"

2006
- 1st Helmholtz Open Science Newsletter
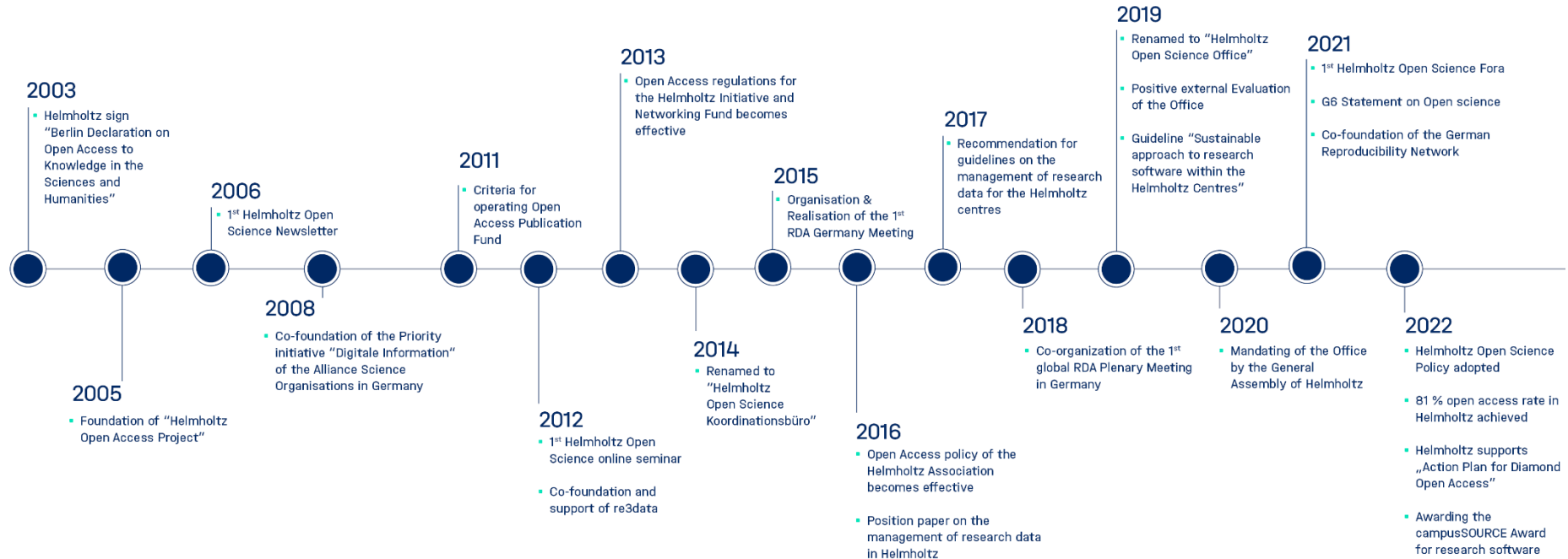
2008
- Co-foundation of the Priority initiative "Digitale Information" of the Alliance Science Organisations in Germany

2011
- Criteria for operating Open Access Publication Fund

2012
- 1st Helmholtz Open Science online seminar
- Co-foundation and support of re3data

2013
- Open Access regulations for the Helmholtz Initiative and Networking Fund becomes effective

2014
- Renamed to "Helmholtz Open Science Koordinationsbüro"

2015
- Organisation & Realisation of the 1st RDA Germany Meeting

2016
- Open Access policy of the Helmholtz Association becomes effective
- Position paper on the management of research data in Helmholtz

2017
- Recommendation for guidelines on the management of research data for the Helmholtz centres

2018
- Co-organization of the 1st global RDA Plenary Meeting in Germany

2019
- Renamed to "Helmholtz Open Science Office"
- Positive external Evaluation of the Office
- Guideline "Sustainable approach to research software within the Helmholtz Centres"

2020
- Mandating of the Office by the General Assembly of Helmholtz

2021
- 1st Helmholtz Open Science Fora
- G6 Statement on Open science
- Co-foundation of the German Reproducibility Network

2022
- Helmholtz Open Science Policy adopted
- 81 % open access rate in Helmholtz achieved
- Helmholtz supports „Action Plan for Diamond Open Access"
- Awarding the campusSOURCE Award for research software

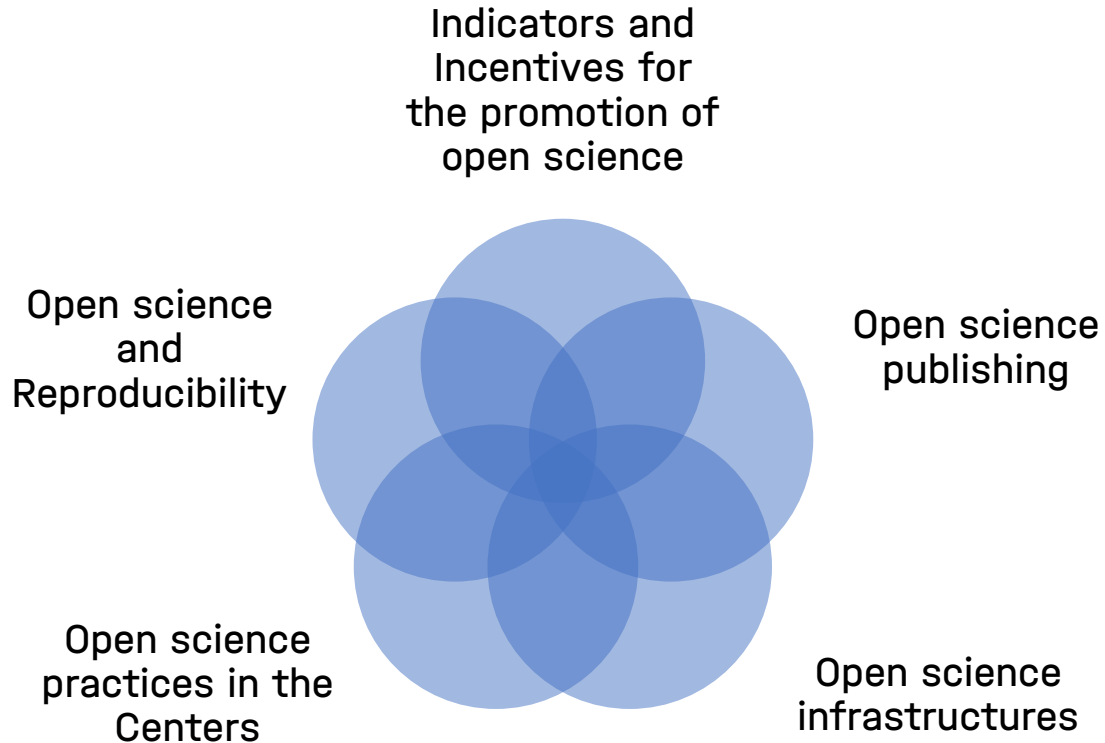# Helmholtz Open Science Office: Mission

Enabling Open Science practices at Helmholtz

- The Helmholtz Open Science Office

  - is a service provider for the Association for the cultural change "from closed to open".

  - promotes dialogue and provides impulses within the Association.

  - offers information and support concerning all aspects of open science.

  - cooperates with the Centers in the Open Science working group and in joint task groups.

  - delivers a key contribution to the digital transformation.

  - represents Helmholtz positions on open science on a national and international level.

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Helmholtz Open Science Office:
Focus topics 2023/2024

Indicators and
Incentives for
the promotion of
open science

Open science
publishing

Open science
and
Reproducibility

Open science
practices in the
Centers

Open science
infrastructures

Current Topics

Helmholtz Open Science Fora

- As part of the Helmholtz Open Science Fora, the Helmholtz Open Science Office communicates important developments in the field of open science to the Association and the Centers.

- **Selection**

  - EOSC

  - Helmholtz in the National Research Data Infrastructure (NFDI)

  - Indicators for Open Science (German only)

  - Open Science and Transfer

  - Publication Cost Management

  - Research Evaluation

  - Research Data Management

  - Research Software

  - Scholar-led Publishing at Helmholtz

National and International Network

- Selection of current partner organizations
  - [Alliance of the German Science Organizations: Priority "Digitality in science"](#)
  - [Community building for research data repositories at Helmholtz](#)
  - [Confederation of Open Access Repositories (COAR)](#)
  - [Deutsche Initiative für Netzwerkinformation (DINI)](#)
  - [European Association of Research and Technology Organisations (EARTO)](#)
  - [German Reproducibility Network (GRN)](#)
  - [National Research Data Infrastructure (NFDI)](#)
  - [Network G6](#)
  - [PREMIER](#)
  - [Research Data Alliance (RDA)](#)
  - [RDA Deutschland](#)

Projects of the Helmholtz Open Science Office

The Helmholtz Open Science Office participates in relevant third-party funded projects.

- Currently these are:
  - BASE4NFDI funded project: PID4NFDI
  - BMBF funded project: open-access.network
  - DFG funded project: PID Network Deutschland
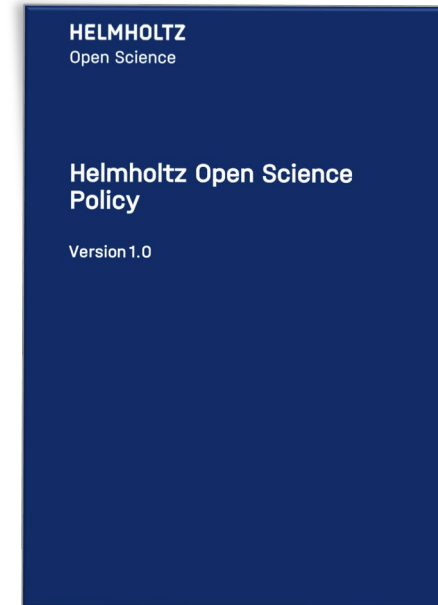 - DFG funded project: re3data COREF
  - DFG funded project: Transform2Open

Completed projects are

Alliance Permanent Access to the Records of Science in Europe Network (APARSEN), DeepGreen, Ecosystem Data Management (EcoDM), Opportunities for Data Exchange (ODE), Options4OA and ORCID DE.

Helmholtz Open Science Policy

Helmholtz Open Science Policy

- The Helmholtz Association's General Assembly adopted an Open Science Policy in September 2022.

- The policy stipulates that scientific articles, research data and research software are to be published openly. Open Science thus becomes the standard of publication practice.

- The Helmholtz Open Science Policy is organized into three sections:

  - In the section "A. Strategic Positioning," the Helmholtz Association formulates a commitment to open science in accordance with the principle "as open as possible and as closed as necessary."

  - In the section "B. Monitoring," Helmholtz makes a commitment to open science on the basis of the three current focus areas through specific and verifiable objectives.

  - In the section "C. Implementation and Common Requirements," in line with the funding policy of the European Commission, open science practices are formulated for implementation purposes.

- Further Information:

  - https://os.helmholtz.de/en/open-science-in-helmholtz/open-science-policy

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Open Science

Helmholtz Open Science Policy

Version 1.0

Strategic Positioning: Principles

Op nness: Results should be published open access. To ensure the accessibility and reusability of results, the provision of open access by applying a Creative Commons CC BY license should be the standard publishing practice for scientific results.

Transparency: Results should be communicated transparently. Research data and research software that are necessary to assess results should be published openly, so that the results can be transparently classified by third parties (e.g., in the context of reproducibility) at any time.

Quality assurance: Digital research services and open knowledge infrastructures support quality assurance. The quality of results should be assured at every stage in the research process in keeping with the principles of good scientific practice.

Cross-linking: The processing of knowledge objects and resources should be guided by the FAIR Principles. Thus, results should be tagged with standards such as metadata and persistent identifiers, so that findability, accessibility, interoperability, and reuse are permanently guaranteed.

Sustainability: Results should be published in long-term secured and trustworthy knowledge infrastructures (e.g., scholarly publication platforms, journals, and repositories).

Strategic Positioning: Design principles

In order to organize open science according to the above-mentioned principles, Helmholtz will:

- support researchers in implementing it by providing infrastructures, services, consultancy, and training;
- develop and expand central open science infrastructures, such as publication platforms, in-house publishers, repositories, and consultancy services, and will promote the networking of these infrastructures at international level;
- ensure the funding of these digital information infrastructures for science;
- bear the costs of publishing services provided by publishers and other service providers on condition that their pricing and cost structures are reasonable and transparent;
- promote innovative quality assurance procedures such as open peer review;
- incorporate open science practices into its funding and notification procedures;
- in the context of research assessment, recognize and value the application of open science practices and, to this end, create incentives for open science practices (open access, open research data, open research software, as well as infrastructures and services);
- support networking with other actors to promote open science at national and international level.

On the Way to Openness by Design

At Helmholtz, the transition "from closed to open" is being supported and promoted by means of concrete activities, services, and offerings. Infrastructures thus also play a key role in this transition. These infrastructures should be seen as dynamically developing sociotechnical structures.

Other areas of activity to be taken into account in this connection are, for example, open educational resources, open hardware, and open services. With a view to digitalization in the sciences, the individual components together form a digital research ecosystem.

In this respect, "openness by design" should be a fundamental maxim that guides future developments.

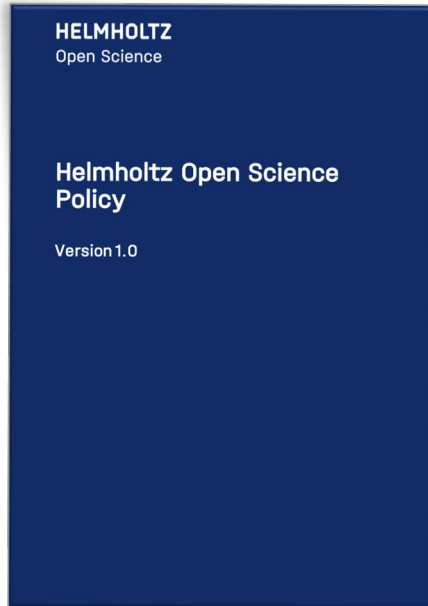# Open Access

Core topic
Open Access

- The Helmholtz Association was one of the initial signatories of the [Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities](#) in 2003.

- For open access, one of the Helmholtz Open Science Office's key endeavors is the promotion of the transformation from subscription-based access to open access.

- In 2016, and after preparation by the Helmholtz Open Science Office, the President signed the "Expression of Interest" of the international OA2020 Initiative.

- In 2016, the Assembly of Members specified the [Open Access Policy](#) in concrete terms, offering a framework of action to the Helmholtz Centers for a coordinated transformation towards open access.

- In 2022, the Helmholtz Association's General Assembly adopted the Helmholtz Open Science Policy.

Open Access

- „1.1 The employees shall ensure that

  - at the time of publication, at the latest, a machine-readable electronic copy of the published version or the final peer-reviewed manuscript accepted for publication is deposited in the Helmholtz Center's repository for scientific publications.

  - the deposited publication is preferably made freely accessible via the repository im-mediately, namely, under the latest available version of the Creative Commons Attribution International Public License (CC BY) (in the case of monographs and other long-text formats, an alternative license may be chosen),

  - but at the latest 12 months after publication, in accordance with the right of self-archiving (Section 38(4) of the German Act on Copyright and Related Rights [UrhG]).

  - they make available via the repository information on research results as well as tools and auxiliary resources that are necessary to validate the conclusions of the scientific publication.

  For implementation purposes, employees are encouraged to reserve sufficient rights of reuse to fulfil the open access requirements."

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Helmholtz Open Science Policy

Open Access

- „1.2 For implementation purposes, the Centers and their information infrastructure facilities shall ensure that

  - the metadata of the deposited publications are accessible under a Creative Commons Public Domain Dedication (CC0) license or another equivalent license; […].

  - the information included in the metadata is identified by means of suitable persistent identifiers (e.g., DOI, ORCID iD, ROR ID, etc.).

  - the publication fees incurred for scientific publications that have undergone peer review and are genuinely open access are funded within the framework of in-house regulations. Further information on the payment of costs can be found in the "Criteria for the Operation of Open Access Publication Funds and the Payment of Open Access Publication Fees" and in the respective internal policies of the Helmholtz Centers."

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Helmholtz Open Science
Policy

Version 1.0
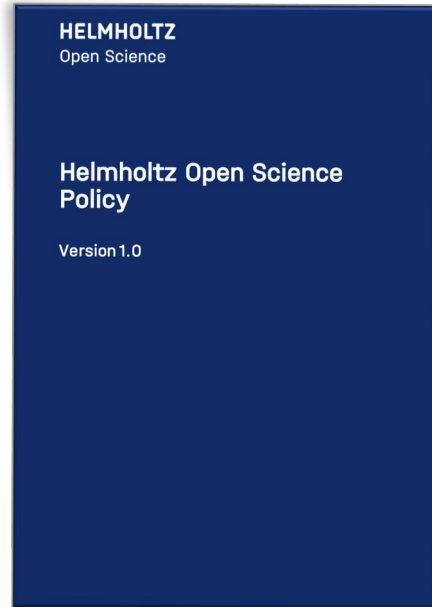
Open Access

- Promotion of the transformation from subscription to open access

- Promotion of scholar-led, Diamond open access

- Open Access Green and Open Access Gold are implemented as equal strategies

Open Access Green	Open Access Gold
• Diverse and distributed infrastructure of open access repositories • Participation in disciplin-specific open access infrastructures (e.g., Inspire HEP) • Co-financing of central open access infrastructures (e.g., arXiv.org)	• Framework agreements for the financing of Open Access internationally (e.g., SCOAP^3) • Framework agreements for the financing of Open Access nationally (e.g., Projekt DEAL) • Framework agreements for the financing of Open Access in Helmholtz (opt-in contracts) • Self-publishing activities at the Centers (e.g., KIT Scientific Publishing)

- Monitoring:
  - National Open Access Monitor at Forschungszentrum Jülich
  - Monitoring in Helmholtz

Open Access

The Helmholtz Open Science Office accompanies the transformation process in Helmholtz towards open access with:

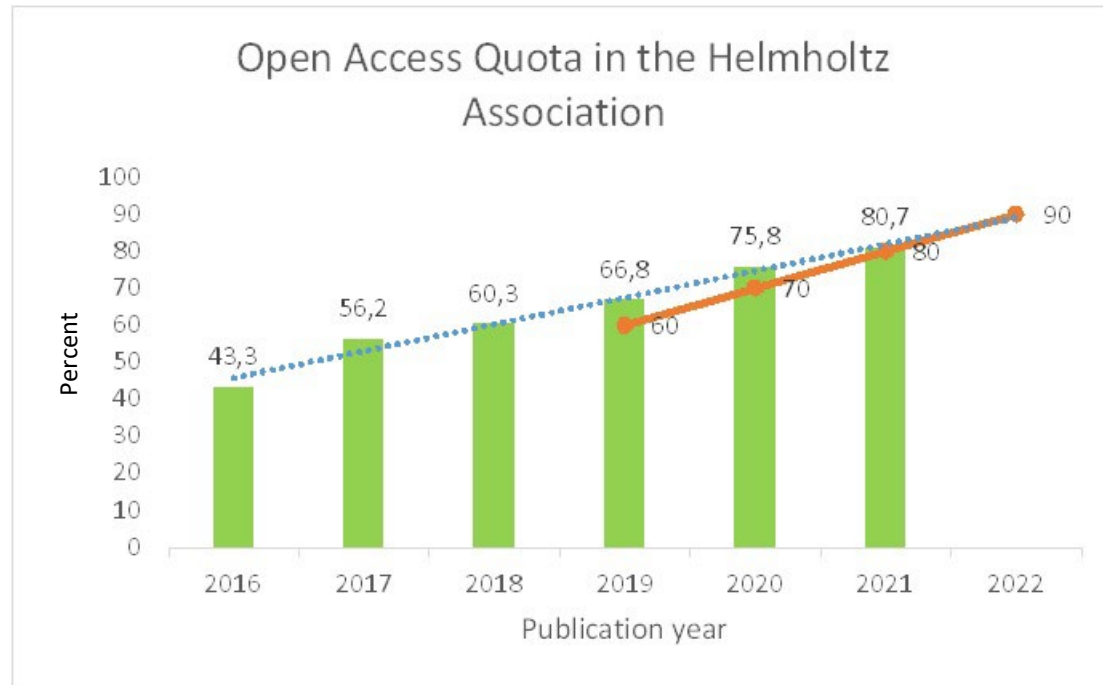- Organization of the Task Group Open Access Transformation

- Events on the subject of open access publishing

  - s. Helmholtz Open Science Fora

    - e. g., Publication Cost Management and Scholar-Led Publishing at Helmholtz

- Resources on the topic of open access publishing

  - FAQs on the topic of "predatory publishing"

  - Criteria for the Operation of Open Access Publication Funds and the Payment of Open Access Publication Fees

- The Helmholtz Open Science Office participates in the BMBF project open-access.network, which among other things operates a help desk, as well as in the DFG project Transform2Open, which addresses information budgeting, workflows and competencies.

Open Access Transformation

- Joint Task Group of the Working Group Open Science and the Working Group Library and Information Management to promote the open access transformation and scholar-led publishing in Helmholtz, moderated by the Helmholtz Open Science Office

- The Task Group, among other aspects, works on the following elements of the open access transformation:
  - Incentives and metrics
  - Guidelines and policies
  - Cultural change towards open access
  - Sovereignty of scientific communication through scholar-led publishing

Increasing Open Access Quota

Open Access Quota in the Helmholtz Association

Percent

Year	Value
2016	43,3
2017	56,2
2018	60,3
2019	66,8
2020	75,8
2021	80,7

Target rates (orange): 60, 70, 80, 90

Publication year

Open Access share of publications from the Helmholtz Association (green) with linear trend (dotted blue) and target rates (orange) for the publication years 2016 to 2022.

Open Research Data

Open Research Data

- The Helmholtz Association is leading in generating, managing and providing access to research data.

- In 2016, the Helmholtz Association adopted a position paper with the title Making information resources more usable on the handling of research data.

- In 2017, the Helmholtz Association adopted the Recommendations for guidelines of the Helmholtz centers for handling research data which guides the Centers in the formulation of their respective Research Data Policies.

- In 2022, the Helmholtz Association's General Assembly adopted the Helmholtz Open Science Policy.

- As of June 2023, 16 of 18 centers have their own research data policies.

- The Helmholtz Open Science Office promotes the coordination of the centers and supports them in developing policies and related practices in handling digital research data; esp. concerning the utilization of the FAIR principles in Helmholtz.

- The work of the Helmholtz Open Science Office thus complements the developments of platforms in the area of Information and Data Science.

Position paper

"Making information resources more usable!"

- Position paper [Making information resources more usable!](#) (2016):

  - foster focused research in the field of information technology and pursue the development and operation of corresponding information infrastructures;

  - store research data from the Centres within suitable data infrastructures and make them available openly and free of charge for subsequent use by science and society;

  - play an active part in national and international initiatives to coordinate the establishment of the necessary infrastructures; and

  - education and training in research data management

  - These principles are intended to promote the quality, productivity, sustainability and competitiveness of science, in keeping with the mission of the Helmholtz Association.
    They also provide a basis for knowledge transfer.

Helmholtz Open Science Policy

Open Research Data

- „2.1 In addition, the employees shall ensure that the following aspects are adhered to:
  - The digital research data that they generate shall be managed responsibly and in accordance with the FAIR Principles.
  - Especially in the case of EU-funded research projects, the employees shall use the data management plan (DMP) tool, and, in doing so, take into account [...]
    - the deposit of research data as early as possible and within the time limits specified in the DMP in a trustworthy repository that is indexed in re3data [...]
    - the principle ''as open as possible, as closed as necessary,'' unless the provision of open access would, in particular:
      - prejudice the legitimate interests of the funding recipients, also with regard to commercial exploitation, or
      - be contrary to other constraints. [...]''

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Helmholtz Open Science
Policy

Version 1.0

Research Data Repositories and Portals in Helmholtz

- The Helmholtz Centers operate about 100 data infrastructures in the Association in which unique and valuable digital research data is curated.

- An overview offers re3data – Registry of Research Data Repositories

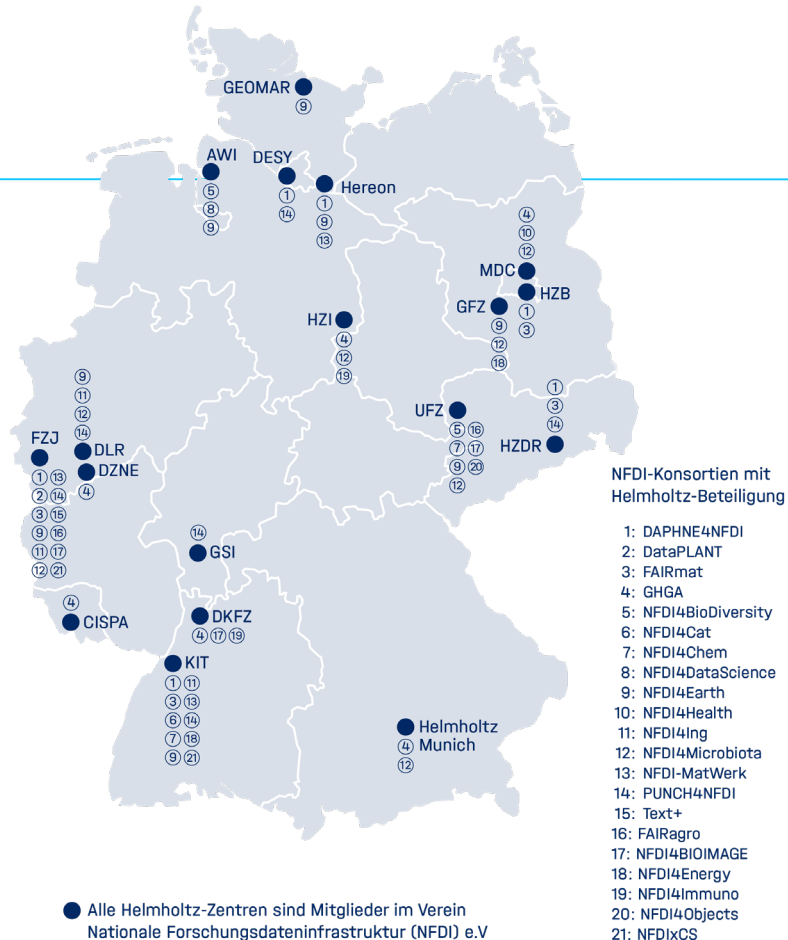https://os.helmholtz.de/en/open-research-data/research-data-repositories
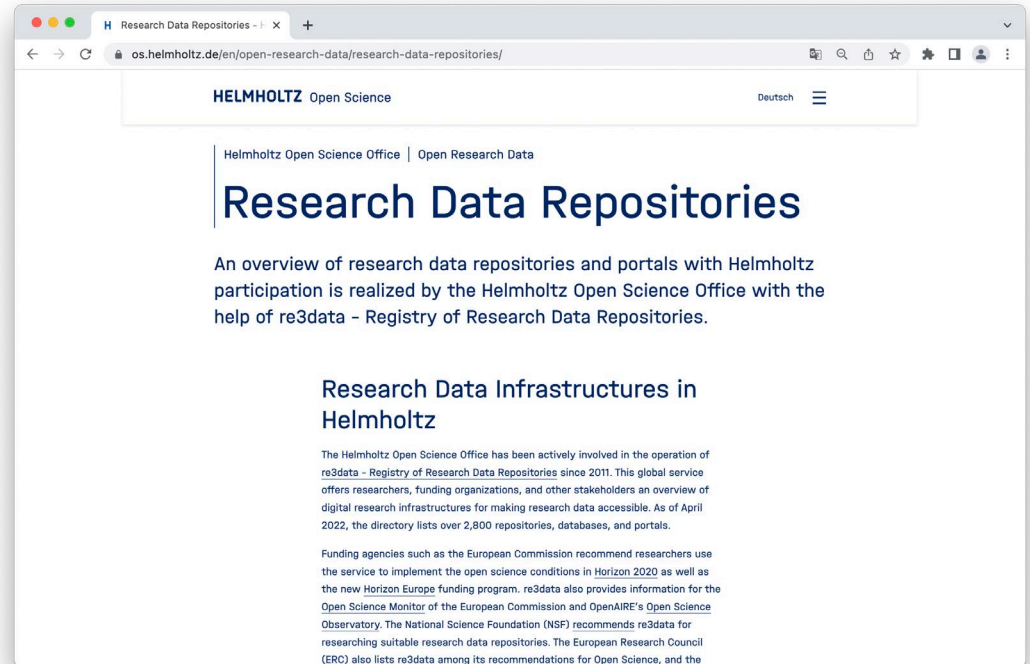
Open Research Data
NFDI Participation

- Numerous consortia of the National Research Data Infrastructure (NFDI) are being implemented with substantial Helmholtz participation.

- All Helmholtz Centers are members of the NFDI Association.

GEOMAR ⑨

AWI ⑤ ⑧ ⑨ DESY ① ⑭ Hereon ① ⑨ ⑬

MDC ④ ⑩ ⑫ HZB ① ③

GFZ ⑨ ⑫ ⑱

HZI ④ ⑫ ⑲

UFZ ⑤ ⑯ ⑦ ⑰ ⑨ ⑳ ⑫

HZDR ① ③ ⑭

FZJ ⑨ ⑪ ⑫ ⑭ DLR DZNE ①③ ②⑭ ③⑮ ⑨⑯ ⑪⑰ ⑫㉑ ④

GSI ⑭

CISPA

DKFZ ④ ⑰ ⑲

KIT ①⑪ ③⑬ ⑥⑭ ⑦⑱ ⑨㉑

Helmholtz Munich ④ ⑫

NFDI-Konsortien mit Helmholtz-Beteiligung

1: DAPHNE4NFDI
2: DataPLANT
3: FAIRmat
4: GHGA
5: NFDI4BioDiversity
6: NFDI4Cat
7: NFDI4Chem
8: NFDI4DataScience
9: NFDI4Earth
10: NFDI4Health
11: NFDI4Ing
12: NFDI4Microbiota
13: NFDI-MatWerk
14: PUNCH4NFDI
15: Text+
16: FAIRagro
17: NFDI4BIOIMAGE
18: NFDI4Energy
19: NFDI4Immuno
20: NFDI4Objects
21: NFDIxCS

● Alle Helmholtz-Zentren sind Mitglieder im Verein Nationale Forschungsdateninfrastruktur (NFDI) e.V

Open Research Data
NFDI Participation

- Helmholtz Centers are involved in the following NFDI consortia (as of March 2023):

  - Base4NFDI: Basic services for the NFDI

  - DAPHNE4NFDI (Participation from Helmholtz: DESY, FZJ, HZB, HZDR, HEREON, KIT)

  - DataPLANT (Participation from Helmholtz: FZJ)

  - FAIRagro (Participation from Helmholtz: FZJ, UFZ)

  - FAIRmat (Participation from Helmholtz: FZJ, HZB, HZDR, KIT)

  - GHGA (Participation from Helmholtz: CISPA, DKFZ, DZNE, Helmholtz Munich, HZI, MDC)

  - NFDI4BioDiversity (Participation from Helmholtz: AWI, UFZ)

  - NFDI4BIOIMAGE (Participation from Helmholtz: DKFZ, FZJ, UFZ)

  - NFDI4Cat (Participation from Helmholtz: KIT)

  - NFDI4Chem (Participation from Helmholtz: KIT, UFZ)

  - NFDI4DataScience (Participation from Helmholtz: AWI)

  - NFDI4Earth (Participation from Helmholtz: AWI, DLR, FZJ, GEOMAR, GFZ, HEREON, KIT, UFZ)

  - NFDI4Energy (Participation from Helmholtz: GFZ/RIFS, KIT)

  - NFDI4Health (Participation from Helmholtz: MDC)

  - NFDI4Immuno (Participation from Helmholtz: DKFZ, HZI)

  - NFDI4Ing (Participation from Helmholtz: FZJ, DLR, KIT)

  - NFDI4Microbiota (Participation from Helmholtz: DLR, FZJ, GFZ, Helmholtz Munich, HZI, MDC, UFZ)

  - NFDI-MatWerk (Participation from Helmholtz: FZJ, HEREON, KIT)

  - NFDI4Objects (Participation from Helmholtz: UFZ)

  - NFDIxCS (Participation from Helmholtz: KIT, FZJ)

  - PUNCH4NFDI (Participation from Helmholtz: DESY, DLR, FZJ, GSI, HZDR, KIT)

  - Text+ (Participation from Helmholtz: FZJ)

Open Research Data
EOSC Participation

- The [European Open Science Cloud](#) (EOSC) has been started in 2015 as a project of the European Commission to make it easier for European researchers to access scientific data, platforms, and services for data processing.

- Helmholtz centers are currently involved in 9 on-going EU projects related to EOSC (as of July 2023):
  - [EOSC-Life](#): FZJ u. Helmholtz Munich (endet am 31.08.2023)
  - [EOSC-Future](#): DESY, FZJ u. KIT (endet am 30.09.2023)
  - [FAIR-IMPACT](#): KIT
  - [EOSC4CANCER](#): DKFZ
  - [Skills4EOSC](#): KIT
  - [AI4EOSC](#): KIT
  - [FAIR-EASE](#): AWI
  - [Blue-Cloud 2026](#): AWI
  - [AquaINFRA](#): Hereon u. KIT

- Approved EOSC applications (will start the earliest October 2023):
  - OSCARS: DESY u. FZJ
  - EVERSE: HZDR
  - EOSC-Beyond: DESY, FZJ u. KIT

Task Group
for the Implementation of Research Data Policies

- The Task Group was founded to create the Recommendations for guidelines of the Helmholtz centers for handling research data.

- The current focus is on monitoring the status of the implementation of Research Data Policies by the Centers:
  - Already 16 Centers have developed their own guidelines for handling digital research data. (As of July 2023)
  - Since 2020, the Helmholtz Open Science Office, together with the Task Group, annually presents an internal report on the handling of research data and the status of the development or implementation of research data policies at the Helmholtz Centers on the basis of a Helmholtz-wide survey.
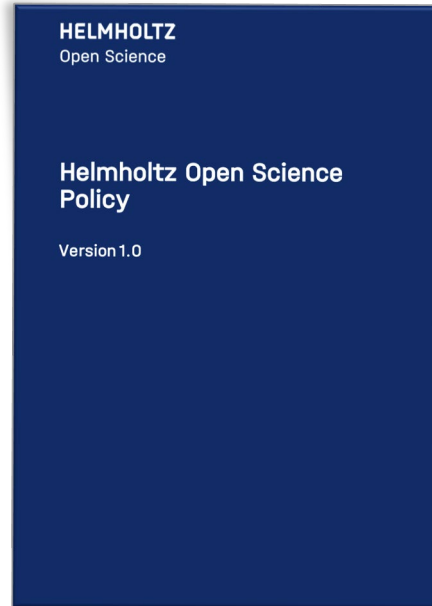
Open Research Software

Core topic
Open Research Software

- Open Research Software is a central component of Open Science, both to enable re-use and reproducibility of scientific results.

- At the Helmholtz Association, there are many initiatives on the topic of Open Research Software:

  - 2017: position paper Access to and re-use of research software

  - 2019: Model Policy on Sustainable Software at the Helmholtz Centers & Recommendations for the Implementation of Guidelines and Policies on Research Software Management at the Helmholtz Centers

  - 2021: Checklist to Support the Helmholtz Centers in Implementing Policies on Sustainable Research Software

  - 2022: Helmholtz Open Science Policy & Contribution to the campusSOURCE Award 2022 for research software

  - 2023: Helmholtz Research Software Directory & Helmholtz Incubator Software Award

Helmholtz Open Science Policy
# Open Research Software

- „3.1 The employees shall ensure that
  - wherever possible, the program code that is necessary for reusing and/or validating the published data is made openly accessible in a repository.
- 3.2 For implementation purposes, the Centers and their information infrastructure facilities shall ensure that
  - researchers are supported in publishing research software;
  - the metadata of the deposited software/the deposited code are published under a Creative Commons Public Domain Dedication License (CCO) or an equivalent license (insofar as legitimate interests or constraints are respected) and in accordance with the FAIR Principles (especially machine-readability), and that they include at least information about the following: program code (description, date of deposit, version, authors, repository); name, acronym, and number of the funding project; licensing conditions; persistent identifiers and, if possible, organizations and funding. If applicable, the metadata must also include persistent identifiers for related publications and other research results."

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Helmholtz Open Science
Policy

Version 1.0

Task Group

Research Software

- Close cooperation with HIFIS, Helmholtz Research Software Directory

- Current project: Helmholtz Incubator Research Software Award

- Fora on the topic of Research Software Policies

- Various links to the work of de-RSE
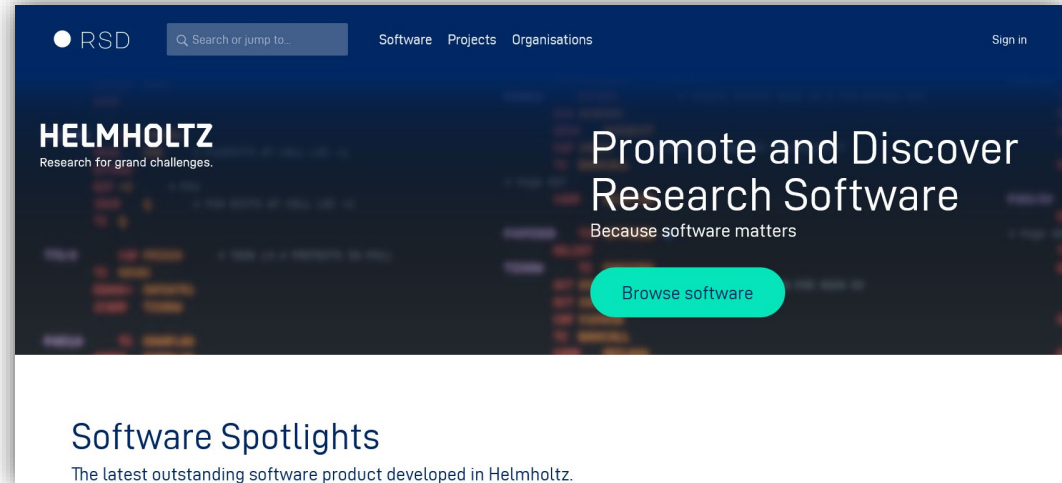
Indicators

Core topic
Indicators

- The goal is to develop incentives and indicators to promote open science at Helmholtz.

- The ongoing discussion process to anchor open science in the process of research evaluation at Helmholtz needs to be further accompanied in order to develop indicators and incentives for open science in the areas of open access, open research data, and open research software.

- In this context, European and international developments in research assessment are considered and continued; see also G6 and Open Science Statement

Task Group
Helmholtz Quality Indicators for Data and Software Products

- The Task Group Helmholtz Quality Indicators for Data and Software Products of the Working Group Open Science of the Helmholtz Association is dedicated to the development of Helmholtz Quality Indicators for Data and Software Products.

- Duration: From March 2022 onwards.

- Relevant products and events:

  - (in German) Discussion paper „Indicators for Open Science": https://doi.org/10.2312/os.helmholtz.014

  - (in German) Report of the Helmholtz Open Science Forum „Indicators for Open Science": https://doi.org/10.48440/os.helmholtz.024

  - Report of the Helmholtz Open Science Forum „Research Evaluation, Reputation Systems, and Openness": https://doi.org/10.48440/os.helmholtz.065

National and International Network

National and International Network

- Selection of current partner organizations
  - [Alliance of the German Science Organizations: Priority "Digitality in science"](#)
  - [Community building for research data repositories at Helmholtz](#)
  - [Confederation of Open Access Repositories (COAR)](#)
  - [Deutsche Initiative für Netzwerkinformation (DINI)](#)
  - [European Association of Research and Technology Organisations (EARTO)](#)
  - [German Reproducibility Network (GRN)](#)
  - [National Research Data Infrastructure (NFDI)](#)
  - [Network G6](#)
  - [PREMIER](#)
  - [Research Data Alliance (RDA)](#)
  - [RDA Deutschland](#)

Priority "Digitality in science"

- The Helmholtz Association has been cooperating with other science organizations in the context of the Alliance of Science Organizations in Germany in the Priority Initiative "Digital Information" since 2008.

- From 2023 to 2028, this cooperation will be continued as Priority "Digitality in science" of the Alliance of German Science Organizations.

- The guiding motto of the cooperation is Shaping Digitality — Advancing Openness and Sovereignty.
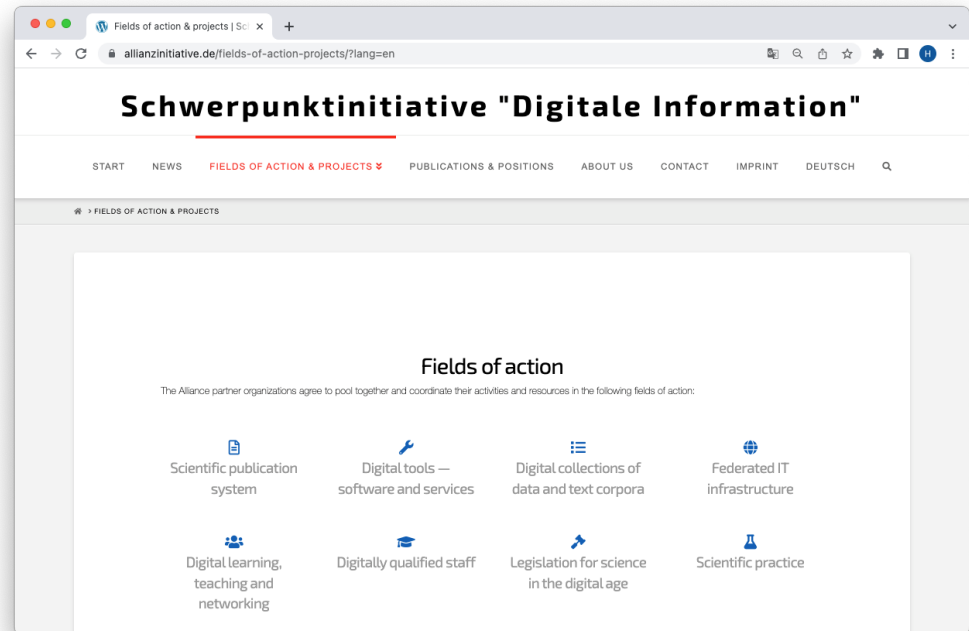
Network G6

- The six European research organizations CNR (Italy), CNRS (France), CSIC (Spain), the Helmholtz Association, the Max Planck Society and the Leibniz Association draw up joint statements on current scientific and research policy issues under the name "G6".

- Within this framework, the Open Science Task Force of the G6 has developed a statement on the common understanding of open science.

G6 statement on Open Science

Brussels, December 2021

EXCELLENT RESEARCH NEEDS OPEN SCIENCE
The growing momentum for Open Science is in line with our mission to foster research excellence and to accelerate the advancement of science. Open Science principles and approaches were developed from within the scientific community itself, out of genuine self-interest and to further develop key scientific principles - the transparency of research practises, reproducibility of results, and the sharing of knowledge. By opening up publications, data, processes, codes, methods and protocols, it also offers new ways for scientific practices. G6, as Research Performing Organizations (RPO), are committed to excellence in research and Open Science is definitely a good approach to foster excellent research.

G6 institutions actively support the transition to Open Science. This transition requires a concerted effort to reform cultural and technological practices. G6 institutions intend to contribute to this transition by jointly addressing the following priorities:

OPEN ACCESS PUBLICATIONS
Open Access to scientific publications is a cornerstone in the broader field of Open Science. We are committed to accelerating the transition to Open Access as the default mode of academic publishing. Open Access to publications improves the pace, efficiency and efficacy of research, and strengthens the authors' visibility, and thus the potential impact of their work.

Reaching 100% of Open Access is a main goal for all of our institutions but researchers cannot freely share and build on the results they publish if publishers hold copyrights of their articles and monographs. Therefore, we are committed to support our researchers to retain sufficient rights to publish their scholarly articles and monographs openly and we encourage them to publish their results (i.e. final version and/or manuscript) under an open license, preferably the Creative Commons Attribution License CC BY.

FAIR DATA
We share a common commitment to the principle of making research data "as open as possible and as closed as necessary". A balanced and flexible approach to data sharing is essential for an efficient science, research and innovation ecosystem, fostering collaboration, knowledge transfer and preserving scientific freedom.

Our institutions are committed to the sharing of data as guided by the FAIR principles (Findable, Accessible, Interoperable, Reusable). Applying FAIR criteria will guarantee discovery, access and reuse of research outputs by humans and machines. Because the cost of not having FAIR data for research is high, strict adherence to FAIR principles to ensure sustainability of research data and software as well as data preservation are major challenges.

HMC collaboration

Community building for research data repositories at Helmholtz

- The Helmholtz Metadata Collaboration (HMC) and the Helmholtz Open Science Office have launched a joint initiative to promote research data repositories at Helmholtz at the end of 2022.

- Goals:

  - Establishment of a networked community at Helmholtz

  - Establishment, dissemination and implementation of best practices

  - Improved visibility of Helmholtz infrastructures at a national and international level

HELMHOLTZ
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↑↓

‹HMC› **HELMHOLTZ**
Metadata Collaboration

Research Data Alliance (RDA)

- The Helmholtz Open Science Office has been co-organizing the RDA-DE conference since 2016. Thereby the work of the international Research Data Alliance (RDA) is promoted in Germany and the networking of actors in the field of research data management at the national level is supported.

- Helmholtz is an organisational member of the RDA.

- In 2018, Helmholtz organized the only global RDA Plenary Meeting to date in Germany with the help of the Helmholtz Open Science Office.

Projects of the Helmholtz Open Science Office

The Helmholtz Open Science Office participates in relevant third-party funded projects.

- Currently these are:
  - BASE4NFDI funded project: PID4NFDI
  - BMBF funded project: open-access.network
  - DFG funded project: PID Network Deutschland
  - DFG funded project: re3data COREF
  - DFG funded project: Transform2Open

Completed projects are

Alliance Permanent Access to the Records of Science in Europe Network (APARSEN), DeepGreen, Ecosystem Data Management (EcoDM), Opportunities for Data Exchange (ODE), Options4OA and ORCID DE.

Basic Services for NFDI
PID4NFDI

- Title: Persistent Identifier Services for the German National Research Data Infrastructure – PID4NFDI

- Project partners: DataCite

  Gesellschaft für wissenschaftliche Datenverarbeitung Göttingen (GWDG)

  Technische Informationsbibliothek (TIB) Hannover

- Approval period for initialization phase: As of 2024

- More information: https://os.helmholtz.de/en/newsroom/projects/pid4nfdi

- Contact person: Roland Bertelmann & Antonia C. Schrader

Basic Services for NFDI
PID4NFDI

- PID4NFDI is initially funded for a initialization phase by Base4NFDI.
- Goal: Establishment of basic services to support NFDI consortia in the usage and implementation of persistent identifiers (PIDs).
- The one-year initialization phase is intended to lay the groundwork for further work.
- The following work packages are planned:
  - Analysis of the NFDI PID landscape and the needs of the NFDI consortia.
  - Identification of necessary technical measures and metadata processes to improve usability and integration of PID systems within the NFDI
  - Development of training concepts and guidance on the use and implementation of PIDs within the NFDI
  - Documentation and evaluation of relevant governance, business, and licensing models of the various PID vendors
  - Outreach and networking activities
- Close collaboration between PID4NFDI and PID Network Germany is envisaged.

BMBF funded project
open-access.network

- Title: open-access.network

- Projekt partners: Kommunikations-, Informations-, Medienzentrum (KIM) an der Universität Konstanz
  Open-Access-Büro Berlin an der Freien Universität Berlin
  Technische Informationsbibliothek (TIB) Hannover
  Universitätsbibliothek Bielefeld
  Niedersächsische Staats- und Universitätsbibliothek Göttingen

- Approval period: 12/2019 to 12/2025

- Project websites: https://open-access.network
  https://os.helmholtz.de/en/newsroom/projects/open-accessnetwork

- Contact persons: Christoph Bruch & Paul Schultze-Motel

BMBF funded project
open-access.network

- In 2022, the project was evaluated in detail on behalf of the BMBF:
  the evaluation report (in German) recommended follow-up funding.

- A project description for a follow-up project has since been submitted and approved

- In the follow-up project from 2023 to 2025, the Helmholtz Open Science Office will be involved in six work packages:

  - Editorial expansion and consolidation of content (web editing).

  - New approaches to Open Access funding (workshops and handouts)

  - Helpdesk (consulting services)

  - Offerings for small institutions and departmental research (workshops and report)

  - Disciplinary offers in cooperation with academic societies (workshops and handout)

  - oa.atlas (data collection, data maintenance and reporting)

DFG funded project
PID Network Germany

- Title: PID Network Germany —

  Network for fostering persistent identifiers in science and culture

- Projektpartner: DataCite

  Deutsche Nationalbibliothek

  Universität Bielefeld

  Technische Informationsbibliothek (TIB) Hannover

- Approval period: 03/2023 to 03/2026

- Project websites: https://www.pid-network.de

  https://os.helmholtz.de/en/newsroom/projects/pid-network-germany

- Ansprechpersonen: Lena Messerschmidt & Antonia C. Schrader

DFG funded project
PID Network Germany

- Goal: Establishment of a network of already existing and currently forming actors in science and culture to promote and support consolidation of the usage, implementation, standardization and international connectivity of PID systems on a local, national and international level as well as the development of a national PID roadmap

- The Helmholtz Open Science Office is responsible for the work packages 1, 5 & 6.

- The project proposal (only in German) provides further insight into the goals of the project:
  https://doi.org/10.48440/os.helmholtz.059

| PIDs for research data | PIDs for academic conferences | PIDs for instruments | PIDs for cultural objects | PIDs for organization & projects | PIDs for persons | PIDs for physical objects | PIDs for repositories & publishing platform | PIDs text publications | PIDs for software |

The 10 PID use cases that will be focused on in the project.

DFG funded project
re3data COREF

- Title: re3data COREF
                     (Community-driven Open Reference for Research Data Repositories)
- Project partners: DataCite

                     Humboldt-Universität zu Berlin

                     Karlsruher Institut für Technologie (KIT)
- Approval period: 01/2020 to 01/2023 (extended until the end of 2023)
- Project websites: https://www.re3data.org

                     https://os.helmholtz.de/en/newsroom/projects/re3data-coref
- Contact persons: Nina Weisweiler & Lea Maria Ferguson

DFG funded project
re3data COREF

re3data **coref**

- re3data is an internationally recognized registry for research data repositories.

- The Helmholtz Open Science Office is one of the co-founder of the service.

- The main goal of the re3data COREF project is to network re3data as a central reference for research data repositories with other services and infrastructures.

- re3data lists over 3100 infrastructures as of May 2023.

  - Of these, around 100 are with Helmholtz participation, see here.

- In 2022, re3data celebrates its 10th anniversary!

Number of research data repositories indexed in re3data per year

DFG funded project
Transform2Open
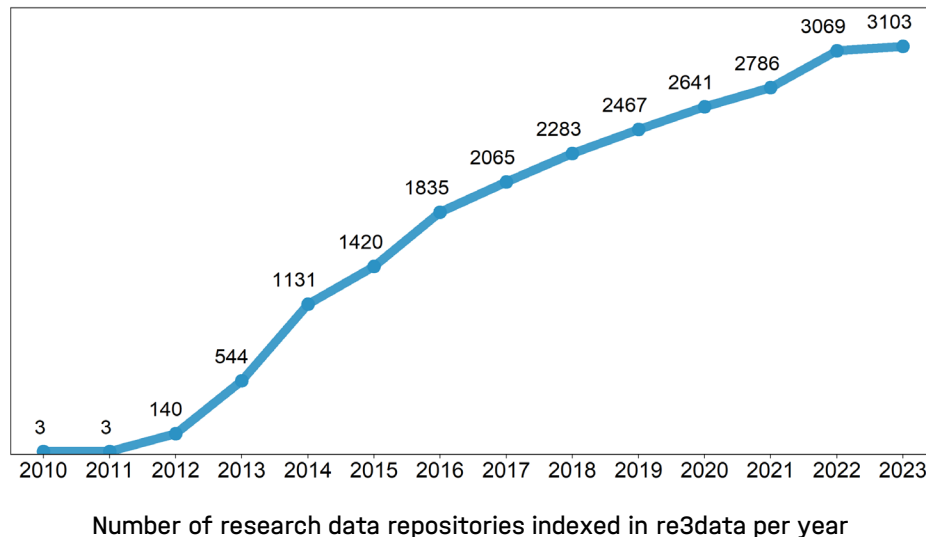
- Title: Transform2Open

- Project partners: Forschungszentrum Jülich, Central Library

  Universität Potsdam, University Library

- Approval period: 01/2023 to 01/2026

- Project websites: https://www.transform2open.de

  https://os.helmholtz.de/en/newsroom/projects/translate-to-englisch-transform2open

- Contact persons: Lea Maria Ferguson & Marcel Meistring

DFG funded project
Transform2Open

- Goals of Transform2Open are:
  - Development of strategies, concepts, and measures to shape the open access transformation
  - promoting the development of budgets, criteria, competencies as well as related processes with regard to financial aspects of the open access transformation
- The target groups for the results produced by Transform2Open are universities and non-university research institutions
- The project organizes, among other things, dialogue forums and workshops with various target groups and ensures interaction with other projects and activities in the area of OA transformation (e.g., open-access.network, openCost, focus group on information budgets)
- Social Media:
  - Twitter: https://twitter.com/Transform2Open
  - Mastodon: https://openbiblio.social/@Transform2Open
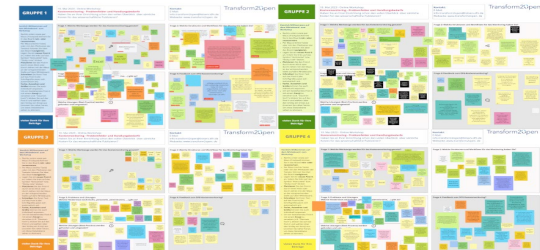
Current Topics

Current Topics
Helmholtz Open Science Fora

- As part of the Helmholtz Open Science Fora, the Helmholtz Open Science Office communicates important developments in the field of open science to the Association and the Centers.

- **Selection**
  - EOSC
  - Helmholtz in the National Research Data Infrastructure (NFDI)
  - Indicators for Open Science (German only)
  - Open Science and Transfer
  - Publication Cost Management
  - Research Evaluation
  - Research Data Management
  - Research Software
  - Scholar-led Publishing at Helmholtz

Current Topics
Briefing Papers and Factsheets

- With the Helmholtz Open Science Briefings and Factsheets, the Helmholtz Open Science Office communicates important developments in the field of open science to the Association and the Centers.

- Selection:

  - Ferguson, L. M., Meistring, M., Bertelmann, R., van Edig, X., Elm, J., Lexis, H., Milius, S., Bauin, S., Schwennsen, F., Singstad, B.-J., Tobias, R., Tsoukala, V. (2023): Helmholtz Open Science Forum ''Scholar-Led Publishing at Helmholtz'', (Helmholtz Open Science Briefing), Potsdam : Helmholtz Open Science Office, 119 p. https://doi.org/10.48440/os.helmholtz.064

  - Pampel, H., Ferguson, L. M., Druskat, S., Konrad, U., Hammitzsch, M., Meeßen, C., Schäfer, D., Speck, R., Diesmann, M., Streit, A., & Caspart, R. (2023). 3. Helmholtz Open Science Forum Forschungssoftware. Helmholtz Open Science Briefing (1.0). Helmholtz Open Science Office. https://doi.org/10.48440/os.helmholtz.057

  - Weisweiler, N. L., Bertelmann, R., zu Castell, W., Fuchs, H., Görzig, H., Jejkal, T., Knodel, O., Kubin, M., Langenbach, C., Patarčić, I., & Schmahl, I. (2023). 2nd Helmholtz Open Science Practice Forum on Research Data. Helmholtz Open Science Briefing. Helmholtz Open Science Office. https://doi.org/10.48440/os.helmholtz.058
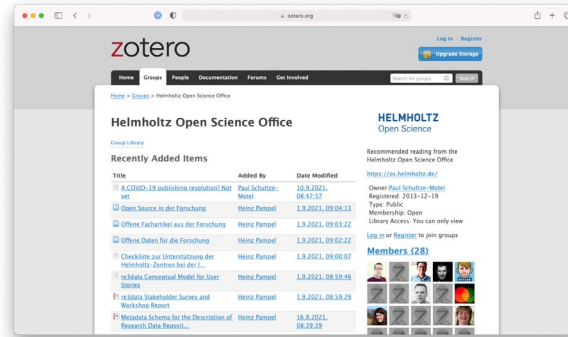
Dialogue

Website and Contact
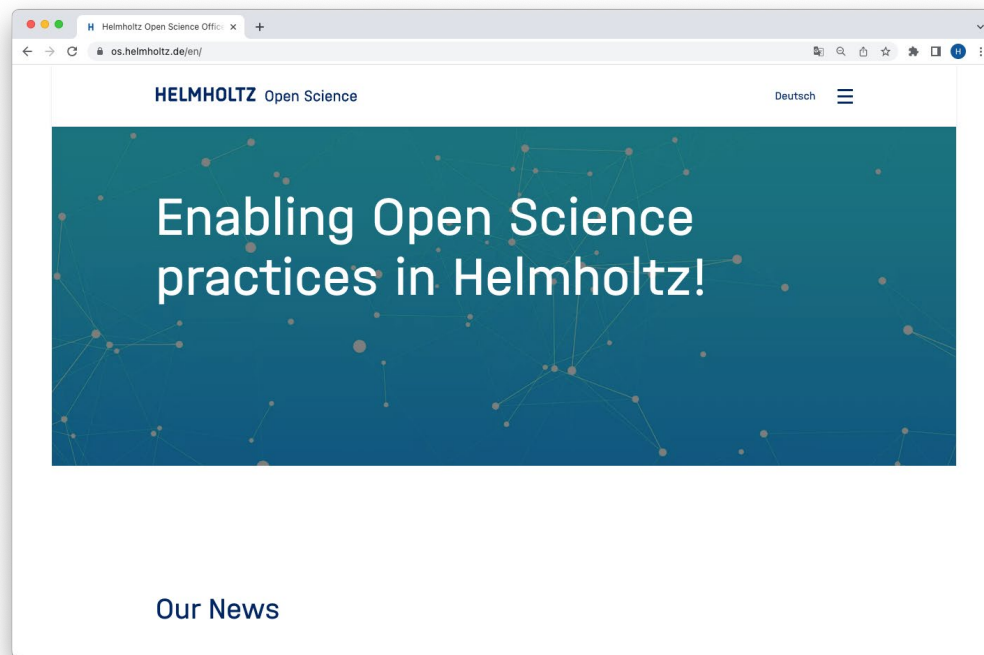
Website https://os.helmholtz.de/en and contact open-science@helmholtz.de

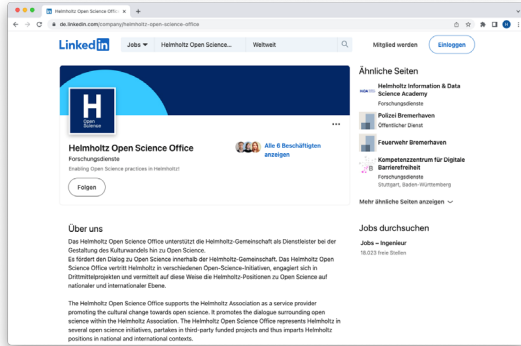# Stay up to date

Mailing list and Mattermost

Zotero
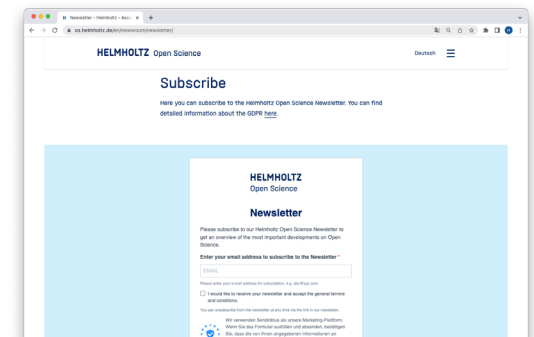
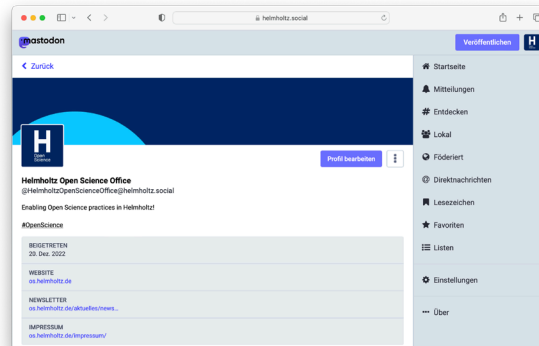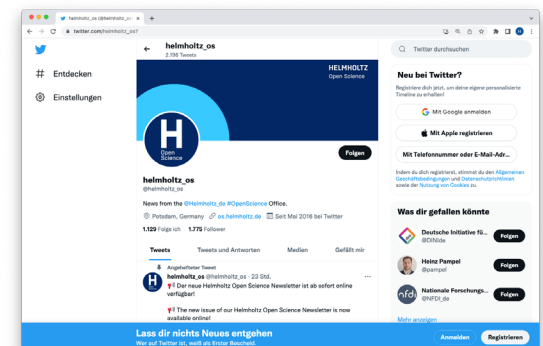**Newsletter**

Social Media

LinkedIn

Mastodon

X

Team

- Roland Bertelmann (Head)

- Christoph Bruch

- Lea Maria Ferguson

- Steffi Genderjahn

- Marcel Meistring

- Lena Messerschmidt

- Heinz Pampel

- Antonia C. Schrader

- Paul Schultze-Motel

- Nina Leonie Weisweiler

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https://os.helmholtz.de/en/about

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Keep in touch

- Email: open-science@helmholtz.de

- Website: https://os.helmholtz.de

- Mailing list for members of Helmholtz:
  Helmholtz Open Science Professionals

- Helmholtz Open Science Newsletter

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