

Anchoring Research Integrity in Open Science and Good (Digital) Research Practice

Lea Maria Ferguson

Helmholtz-Gemeinschaft,
Helmholtz Open Science Office

Helmholtz-CAS Workshop - September 27, 2022

Overview

- Research Integrity and its Principles
- Open Science
- Good Research Practice
- Discussion Questions



Within the European framework

The European Code of Conduct for Research Integrity

The European Code of Conduct for Research Integrity

(2017, revised edition)

Description of good research practices in the following contexts:

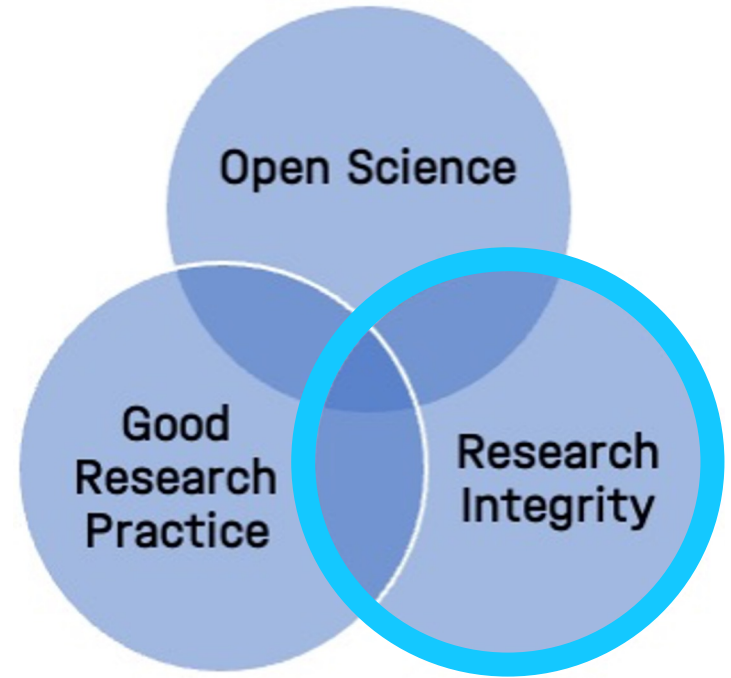
- Research Environment
- Training, Supervision and Mentoring
- Research Procedures
- Safeguards
- Data Practices and Management
- Collaborative Working
- Publication and Dissemination
- Reviewing, Evaluating and Editing



The European Code of Conduct for Research Integrity

Fundamental Principles

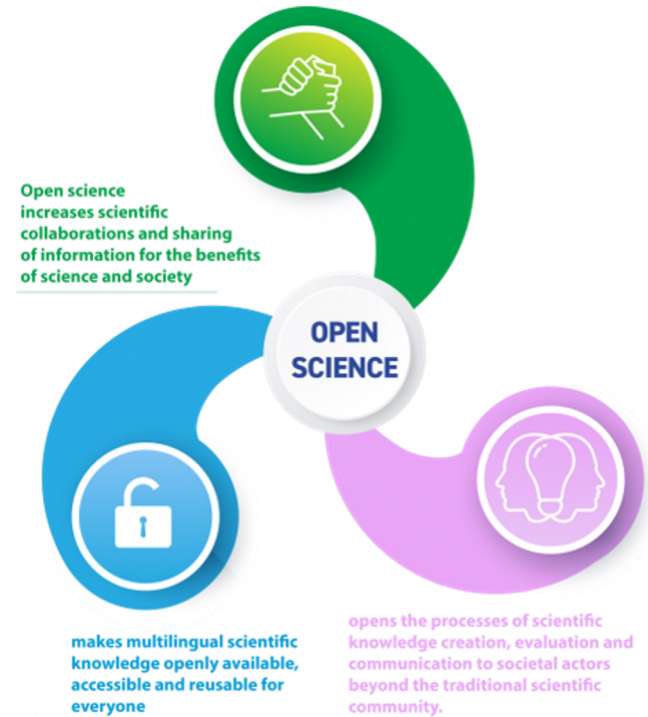
- **Reliability** in ensuring the quality of research, reflected in the design, the methodology, the analysis and the use of resources.
- **Honesty** in developing, undertaking, reviewing, reporting and communicating research in a transparent, fair, full and unbiased way.
- **Respect** for colleagues, research participants, society, ecosystems, cultural heritage and the environment.
- **Accountability** for the research from idea to publication, for its management and organisation, for training, supervision and mentoring, and for its wider impacts.



Synergy effects

Research Integrity and Open Science

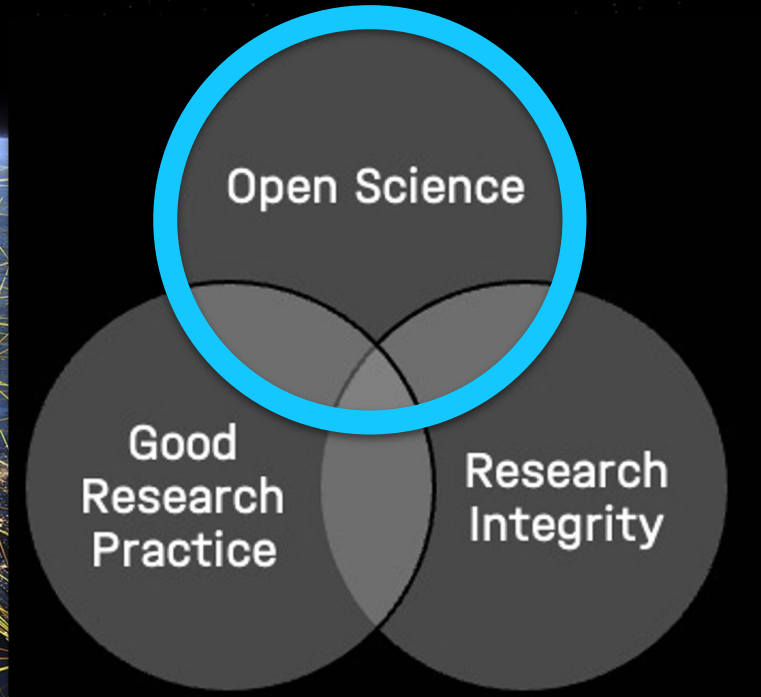
- “Building on the essential principles of academic freedom, research integrity and scientific excellence, **open science sets a new paradigm** that integrates into the scientific enterprise practices for reproducibility, transparency, sharing and collaboration resulting from the increased opening of scientific contents, tools and processes” ([UNESCO, 2021, Recommendation on Open Science, p. 7](#)).
- “Open science should respect academic freedom and human rights and support high-quality research by bringing together multiple sources of knowledge and making research methods and outputs widely available for **rigorous review and scrutiny, and transparent evaluation processes**” ([UNESCO, 2021, Recommendation on Open Science, p. 17](#)).



UNESCO (2021). <https://www.unesco.org/en/natural-sciences/open-science>

Open Science

- **Open Access** - access to and re-use of textual publications
- **Open Research Data** - access to and re-use of research data
- **Open Research Software** - access to and re-use of research software



Position paper on research data management in Helmholtz “Making information resources more usable!”

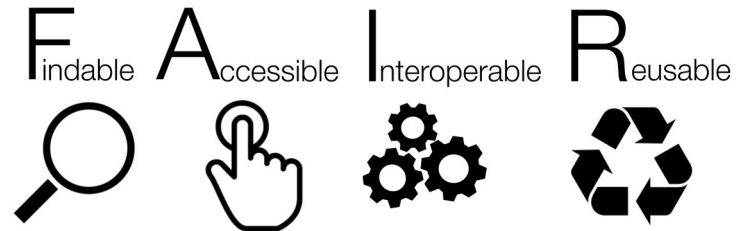
- Position paper “Making information resources more usable!” (2016). <https://doi.org/10.48440/os.helmholtz.026>:
 - foster the development and operation of information infrastructures;
 - make research data from the Centres available openly and free of charge for subsequent use by science and society;
 - provide a basis for knowledge transfer;
 - support education and training in research data management.
- → promote the quality, productivity, sustainability and competitiveness of science
- → facilitate scientific cooperation
- → trustfulness and reliability through research integrity and good research practice arising from transparency and openness



Good Research Practice and Open Science

European Research Council (ERC)

- “The mission of the ERC is to support excellent research in all fields of science and scholarship. (...) The ERC considers that providing free online access to these materials is the most effective way of ensuring that the fruits of the research it funds can be accessed, read, and used as the basis for further research” ([ERC, 2022, Open Science](#))
- Open science requirements ERC Funding Programmes:
 - [Horizon 2020 \(2014-2020\)](#)
 - [Horizon Europe \(2021-2027\)](#)
- The ERC is a supporter of responsible management of research data and other research outputs, in line with the FAIR principles (Findable, Accessible, Interoperable and Re-usable). ([ERC, 2022, Open Science](#))



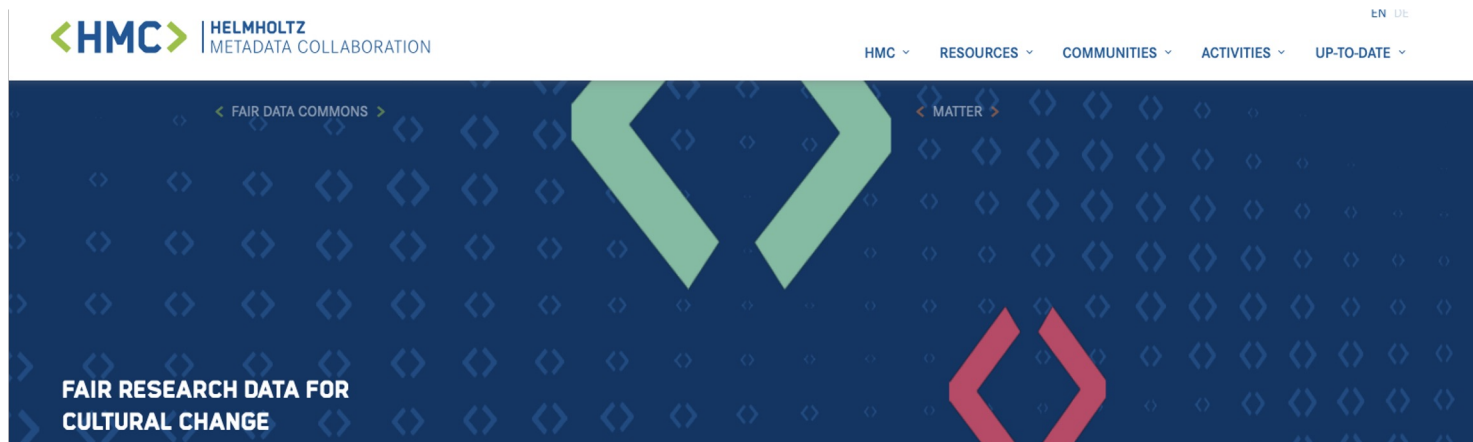
[Pundir, Sangya. CC-BY-SA-4.0](#)

German Reproducibility Network

- On February 1, 2021, eight key Open Science actors in Germany, including the Helmholtz Open Science Office, founded the German Reproducibility Network.
- The Helmholtz Association is a key actor of this cross-disciplinary consortium, which promotes **reproducible and robust research on a national level**.
- The networks activities include:
 - Supporting researchers in practising open science practices and founding local open science communities.
 - Connecting reproducibility initiatives.
 - Advising institutions on how to embed open science practices in their work.
 - Representing the open science community in the wider scientific landscape.



The Helmholtz-Incubator Information & Data Science Helmholtz Metadata Collaboration (HMC)



The Helmholtz Metadata Collaboration (HMC) develops and implements novel concepts and technologies for a sustainable handling of research data through high-quality metadata.

Main mission: Enable Helmholtz Centers and researchers to describe data and its context comprehensively, following the FAIR principles in research data.

[Further information on HMC](#)

ERAC Standing Working Group on Open Science and Innovation

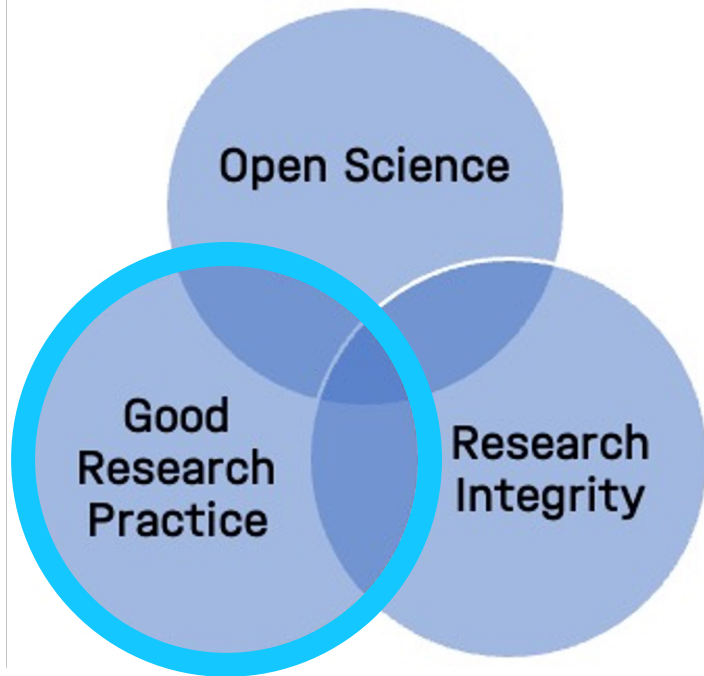
Guideline Report on Research Integrity and Open Science



Cross-cutting issues:

- "... the importance of open science as a mechanism for reinforcing research integrity, while, at the same time, research integrity contributes to open science" ([Guideline Report on Research Integrity and Open Science, 2021, p. 2](#)).
- "Communicate about Open Science and Research Integrity in a positive way, as two fundamental and complementary pathways towards excellent science and greater social impact of research" ([Guideline Report on Research Integrity and Open Science, 2021, p. 4](#)).

Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) Guidelines for Safeguarding Good Research Practice



The screenshot shows the DFG website interface. At the top left is the DFG logo and the text 'Deutsche Forschungsgemeinschaft'. Below this is a navigation bar with three tabs: 'Research Funding', 'Funded Projects', and 'DFG in Profile'. A search icon is located in the top right corner. The main content area has a breadcrumb trail: 'Home > Funding > Principles of DFG Funding > Good Research Practice'. The title of the page is 'Good Research Practice' with the subtitle 'Guidelines for Safeguarding Good Research Practice'. The main text describes the aim of the Code: 'The aim of the Code is to enable the intended audience – researchers as well as heads of universities and non-university research institutions – to align their internal structures, processes and actions with the guidelines for good research practice. The intention is to create a deeply rooted culture of research integrity at higher education institutions, focusing less on breaches of good research practice and more on the professional ethics of researchers.' To the right of the text is a small image of a booklet titled 'Leitlinien zur Sicherung guter wissenschaftlicher Praxis' with the DFG logo. Further right is a sidebar with a list of links: 'Overview: Good Research Practice >', 'German Research Ombudsman >', 'Misconduct Investigation Procedure >', 'Training Events on Good Research Practice and Events for Ombudspersons >', and 'International Standards >'.

German Research Ombudsman



OMBUDSMAN
FÜR DIE
WISSENSCHAFT

The German Research Ombudsman

Ombuds Committee for scientific integrity in Germany

The German Research Ombudsman (*Ombudsman für die Wissenschaft*) is a committee appointed by the [German Research Foundation \(DFG\)](#) that assists all scientists and researchers in Germany when it comes to questions and conflicts related to good scientific practice (GSP) and scientific integrity. The Ombuds Committee is supported in its deliberations and conflict mediation by an office that is located in Berlin.

The deliberations of the *Ombudsman* are orientated in line with the 19 "Guidelines for Safeguarding Good Scientific Practice" (see the [DFG code of conduct](#), 2019). Everyone is free to contact either the *German Research Ombudsman* or a local ombudsperson at a university or non-university research institution.

As a matter of principle, the Ombudsman treats all enquiries neutrally, fairly and in strict confidence.

- The **Research Ombudsman** may be approached by all researchers, directly and independently of any connection with the DFG, for advice and support in matters relating to good research practice and its abuse due to lack of integrity.
- [More information on the German Research Ombudsman](#)



Discussion hub: „Dealing with research data“

Project coordination: Dr. Katrin Frisch

Helmholtz Ombudspersons and network

- Central Ombudsperson of the Helmholtz Association:
Prof. Karin Lochte
- Decentralized Ombudsperson activities:
 - [Ombudspersons at each Helmholtz Center](#)
 - Network of Ombudspersons
 - Mediation of conflicts
- For Helmholtz: “Framework Guideline for Ensuring Good Research Practice (GWP) and procedures in the event of scientific misconduct”
 - Explicit consideration of open science aspects



DFG Code of Conduct

Safeguarding Good Research Practice

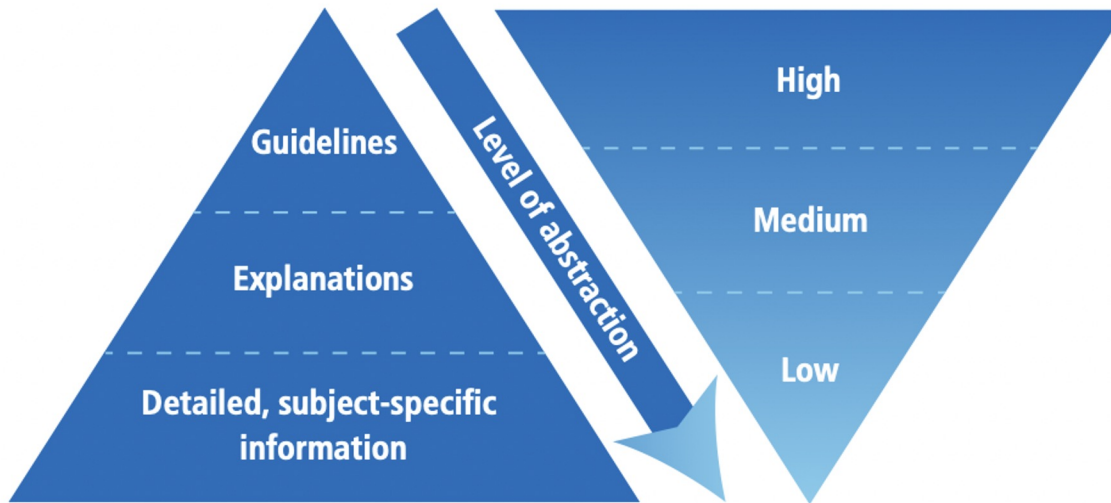
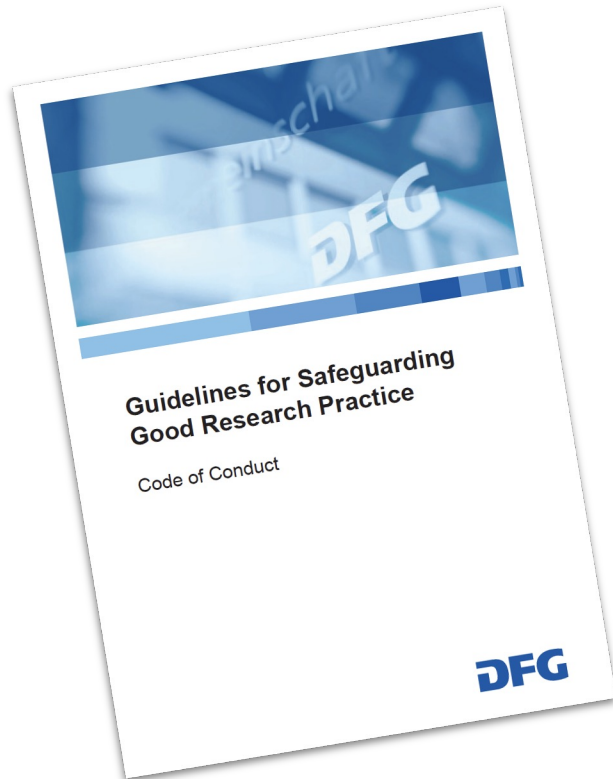


Figure 1: Structure of the DFG Code of Conduct *Guidelines for Safeguarding Good Research Practice*

- First level: **Guidelines** and second level: **Explanations**, available via: <https://doi.org/10.5281/zenodo.3923602>
- Third level: Online portal “**Research Integrity**”, available via: <https://wissenschaftliche-integritaet.de/en>

Relevant Guidelines in the DFG Code

Safeguarding Good Research Practice



- Guideline 5: Performance dimensions and evaluation criteria
- Guideline 7: Cross-phase quality assurance
- Guideline 10: Legal and ethical framework, rights of use
- Guideline 11: Methods and standards
- Guideline 12: Documentation
- Guideline 13: Establishing public access to research results
- Guideline 14: Authorship
- Guideline 15: Publication organ
- Guideline 17: Archiving

Deutsche Forschungsgemeinschaft. (2022). Guidelines for Safeguarding Good Research Practice. Code of Conduct.

<https://doi.org/10.5281/zenodo.6472827>

Briefing: Good (Digital) Research Practice and Open Science

Helmholtz Open Science Briefing: Good (Digital) Research Practice and Open Science: Support and Best Practices for the Implementation of the DFG Code of Conduct "Guidelines for Ensuring Good Scientific Practice" (Version 2.0) <https://doi.org/10.48440/os.helmholtz.052>

- **Occasion.** DFG Code of Conduct "Guidelines for Ensuring Good Scientific Practice"; obligatory implementation.
- **Content.** Practical description of the relevance of Open Science in implementing the Code (based on selected recommendations of the DFG Code).
- **Objective.** Impulses for anchoring research integrity in open science and good (digital) research practice.



Briefing: Good (Digital) Research Practice and Open Science

- Helmholtz Open Science Briefing: Good (Digital) Research Practice and Open Science: Support and Best Practices for the Implementation of the DFG Code of Conduct "Guidelines for Ensuring Good Scientific Practice" (Version 2.0)
<https://doi.org/10.48440/os.helmholtz.052>
 - **Occasion.** DFG Code of Conduct "Guidelines for Ensuring Good Scientific Practice"; obligatory implementation.
 - **Content.** Practical description of the relevance of Open Science in implementing the Code (based on selected recommendations of the DFG Code).
 - **Objective.** Impulses for anchoring research integrity in open science and good (digital) research practice.



Discussion Questions

- How can open science further support research integrity and good research practice, especially in terms of **facilitating scientific collaboration**?
- What are the **concrete needs** to ensure a successful integration of research integrity and good research practice into practical research work and how can this be further supported - especially in the open science context?
- To what extent can research integrity and good research practice be understood as an **institutional and/or an individual task**?
- What are the **potential challenges and opportunities** against the background of the existing policies and guidelines concerning research integrity and good research practice?

HELMHOLTZ

Open Science

Keep in touch

- Email - open-science@helmholtz.de
- Twitter - [@helmholtz_os](https://twitter.com/helmholtz_os)
- Website - <https://os.helmholtz.de>
- Mailing list for members of Helmholtz - [Helmholtz Open Science Professionals](#)
- [Open Science Newsletter](#)

Thank you very much for your attention!

 **Lea Maria Ferguson**

 leamaria.ferguson@os.helmholtz.de

 <https://orcid.org/0000-0002-7060-3670>

[@LeamariaF](#)

Permalink: https://gfzpublic.gfz-potsdam.de/pubman/item/item_5014728



All texts in this presentation, except citations, are licensed under Attribution 4.0 International (CC BY 4.0):

<https://creativecommons.org/licenses/by/4.0/>