

Open Science Policy
Open Scientific Practice

Technology
Arts Sciences
TH Köln

What is Open Science?

Definition

What Scientists publish the results of their teaching development and research process on the condition that these remain openly accessible, comprehensible, verifiable, and reusable

How by

- facilitating open access to scientific findings (in the areas of open access, open research data, and open educational resources) and making their research results more visible,
- using open research infrastructures,
- pursuing the open integration of social actors beyond the scientific community, and
- striving for open dialogue with other knowledge systems

Why in order to promote scientific cooperation and information exchange, and to make the processes of creating, analyzing, and communicating scientific findings transparent for the scientific community and social actors.

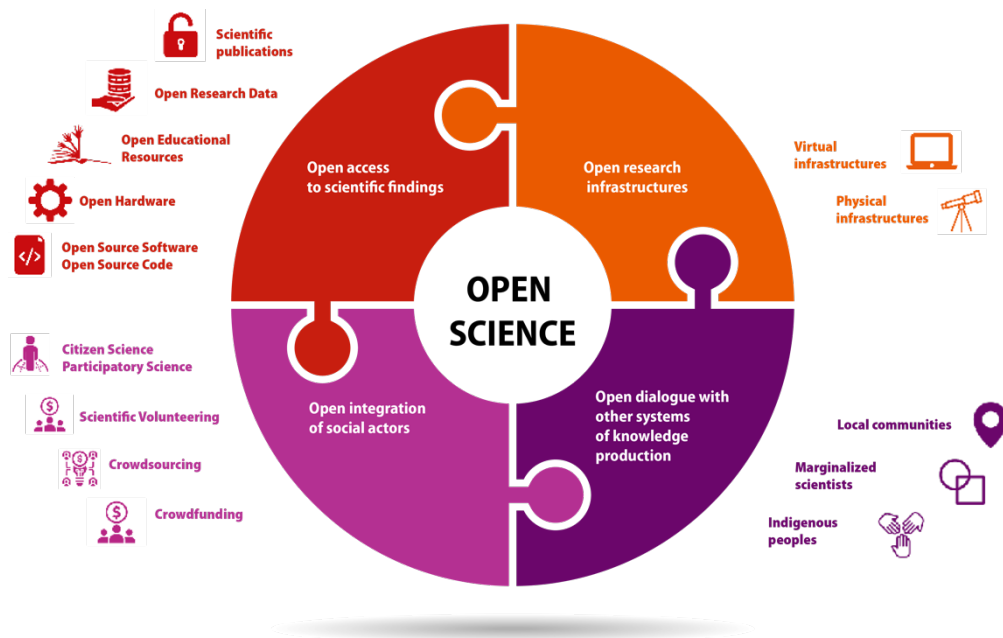


Image: Own representation based on UNESCO Recommendation on Open Science, 2021

Preamble

Open Science¹ combines various initiatives, movements, and practices that aim to make every component of the scientific process openly accessible and reusable. The Open Science approaches have been developed by the scientific community itself, both out of genuine self-interest to increase the visibility of their own research and for the further development of scientific principles. The targeted opening of science offers a wide range of impact potential for the scientific community and other social actors, like increasing innovation potential or improving public trust in science and technology. Through Open Science approaches, science will be able to reposition itself with regard to its processes, reproducibility, quality assurance, and validation systems.²

TH Köln is committed to the principles of Open Science and will actively support and help shape the transformation of scientific practice as well as the process of cultural change – “from closed to open.” It sees digitization as an opportunity to generate collective knowledge and to initiate carefully considered innovation processes. It defines open academic education as a core value of social innovation in its *Hochschulentwicklungsplan 2030* [University Development Plan].³ Further, with the university-wide Human Resources Strategy for Researchers (HRS4R)⁴, TH Köln implements fair and transparent hiring and evaluation processes through the “European Charter for Researchers” and the “Code of Conduct for the Recruitment of Researchers.”⁵ Its commitment in this area was awarded the European “HR Excellence in Research” quality seal.

Definition

According to the UNESCO Recommendation on Open Science,⁶ Open Science is defined as a comprehensive concept that aims to make scientific findings openly available, to improve cooperation and information exchange for the benefit of science and society, and to open up the processes of knowledge creation, analysis, and communication for social actors beyond the scientific community. Open Science includes every discipline and aspect of scientific practice, including basic research and applied research in every scientific discipline, based on the following pillars:

- Open scientific knowledge
- Open science infrastructures
- Open engagement of societal actors
- Open dialogue with other knowledge systems

¹ Open Science as a concept is based on a global understanding of the four basic principles of open science (transparency, reproducibility, reusability, and open communication). [German Mission Statement from Open Science AG, 2014.](#)

² [Open Science – Perspektiven aus Deutschland auf die Erarbeitung der geplanten Empfehlung der UNESCO \(2020\), p. 8.](#)

³ [TH Köln \(2018\). Hochschulentwicklungsplan 2030.](#)

⁴ [TH Köln \(2022\). Human Resources Strategy for Researchers.](#)

⁵ [European Commission \(2005\). The European Charter & Code for Researchers.](#)

⁶ [UNESCO Recommendation on Open Science \(2021\).](#)

Principles and measures

The present Open Science Policy is intended for all members and associates of TH Köln – University of Applied Sciences, and is based on the above definition as well as the UNESCO Recommendation on Open Science. This recommendation establishes worldwide standards as a guideline for institutional and state actors, and for designing legal and political framework conditions for Open Science. To anchor openness in teaching and research in the long term, two perspectives form the practical implementation of Open Science at TH Köln:

- (1) TH Köln will fulfill the necessary conditions and requirements to promote Open Science.
- (2) TH Köln will support initiatives and the commitment of its scientists in the area of Open Science.

TH Köln recommends that all scientific and non-scientific members involved in research, transfer, and teaching, as well as third parties who collaborate with TH Köln, follow the Open Science principles. TH Köln's service institutions advise and support all university members in implementing the Open Science principles, especially where openness is restricted due to political or strategic considerations or legal framework conditions. In the case of patentable results or sensitive data, publication shall take place only after protection of the intellectual property is guaranteed. TH Köln recommends consulting the Legal Information office at Digital University NRW (DH.NRW) on legal issues. In addition, TH Köln takes field-specific requirements and restrictions of the various scientific disciplines into consideration when implementing these recommendations. Open Science activities are recognized as a scientific performance metric.

Open access to scientific findings

Open licenses regulate access, reuse, repurposing, adaptation, and distribution under certain conditions. As a basic precept, TH Köln recommends following the principle “as open as possible, as closed as necessary”⁷ for open publication of scientific findings. For immediate open-access publications, TH Köln recommends publishing materials under a Creative Commons license (preferably the applicable version of CC BY)⁸ or a corresponding OSI-compatible license.⁹ The licensing notice should include the following information:

- Title of the work, name of the author, CC BY (current version with link)

In addition to free access to scientific findings, the main objectives of Open Science include transparency in the research process and open methodology, which includes making research results replicable and reproducible. Consequently, all scientists at TH Köln should aim to create open access, methodology, and analysis processes in the following areas:

Scientific publications

- TH Köln develops an Open Access Policy that defines a suitable framework for the open publication of research results and their financing.
- TH Köln defines Open Access as a significant characteristic of Open Science, and a publication standard. Open Access stands for unrestricted, no-cost access to scientific information.
- TH Köln encourages its researchers to save their publications in an Open Access publication medium wherever possible to ensure unrestricted further processing, interoperability, and long-term archiving (where not prohibited by law or by ethical concerns). Publications of TH Köln should be published immediately or retroactively through TH Köln’s two publication servers/repositories, [ePublications](#) or [Cologne Open Science](#).
- TH Köln encourages the following publication paths:
 - *Platinum/Diamond Open Access* (= initially published as an Open Access article in a no-cost newspaper)
 - *Gold Open Access* (= initially published in an Open Access professional publication)
 - *Green Open Access* (= secondary publishing of a (professional) publication on a publication server/ repository, where applicable with a “do not release before” date or a manuscript publication)
- TH Köln recommends that its researchers add their publications to TH Köln’s [Digital University Bibliography](#) (if they are not yet included here).
- TH Köln recommends that its researchers create an Open Researcher and Contributor Identity ([ORCID](#)) and list their scholarly activities under this ID so they can be clearly identified as the author.
- TH Köln creates structures and funding instruments to support the switch to Open Access publications. It will set up a publication fund for co-financing Open Access publications.
- In keeping with the EUA Open Science Agenda 2025¹⁰, TH Köln welcomes the efforts to make review processes more transparent and open (Open Peer Review).
- TH Köln supports multilingual publications and an international focus in its scientific practice and communication.

⁷ [European Commission, Directorate-General for Research and Innovation, Open science and intellectual property rights: How can they better interact? \(2022\).](#)

⁸ These rights can only be granted by the person who holds the rights.

⁹ Open Source Initiative <https://opensource.org/>.

¹⁰ [European University Association \(2022\). The EUA Open Science Agenda 2025.](#)

Open Research Data

- TH Köln has developed a corresponding guideline for working with research data.¹¹
- TH Köln welcomes the provision of research data by its scientists as part of the research process. Research data includes all data that is generated or used in the context of scientific research – analog and/or digital data, raw and processed data, and the associated metadata.
- TH Köln encourages its scientists to prepare, back up, document, and save their research data according to the current discipline-specific standards, and to create a data management plan (DMP).
- TH Köln strongly recommends publishing research data according to the FAIR principles established in the research system. In other words, research data should be *findable, accessible, interoperable, and reusable*.¹²
- TH Köln creates structures for an institutional research data management system. By establishing information and consulting resources, it enables its scientists to handle research data responsibly throughout the entire research-project cycle.
- TH Köln participates in the national research data infrastructure (NFDI e. V.) so it can systematically access science and research databases for the German science system, connecting them and making them sustainably and qualitatively useable.
- TH Köln promotes its scientists' data skills through the modular, interdisciplinary Data Literacy Initiative (DaLI) program. The DaLI Lab, cooperation projects, and a lecture series also create interfaces with regional actors, organizations, and civil society.
- By building a research information system (FIS), TH Köln is creating an infrastructure that will document and spotlight the research commitment of its scientists. The FIS includes an integrated documentation and reporting system that maps performance and equipment. This facilitates reporting, makes the research system more transparent, and promotes communication between scientists and the public.

¹¹ [TH Köln \(2021\). Leitlinie zum Umgang mit Forschungsdaten.](#)

¹² [The FAIR Guiding Principles for scientific data management and stewardship \(2016\).](#)

Open Educational Resources

- TH Köln defines Open Educational Resources (OER), based on the UNESCO Recommendation on Open Educational Resources,¹³ as teaching, learning, and research materials that are published under an open license. This permits their no-cost access, further use, use for any purpose, processing, and further processing by others.
- TH Köln promotes access to as well as the creation and further use of inclusive, equal-opportunity, and high-quality Open Educational Resources (OER).
- Among other things, TH Köln provides its teachers with support for OER production. It encourages them to publish OER in the state portal of the Open Resources Campus NRW ([ORCA.nrw](https://orca.nrw)), and to consult the Legal Information office of ORCA.nrw in the event of any legal questions.
- TH Köln has created an OER Policy¹⁴ that provides a suitable framework for working with Open Educational Resources.

Open Hardware, Open Source Software / Open Source Code

- TH Köln welcomes the open approach to providing Open Source Hardware (i.e. hardware whose plans have been made publicly accessible) and the respective source files. TH Köln recommends that any hardware developed at the university be published under a free license, e.g. in an open hardware repository.
- TH Köln welcomes the open approach to providing Open Source Software and its source codes, in consideration of the relevant applicable legal framework. TH Köln recommends that any software developed at the university be published as Free/Libre Open Source Software (FLOSS). Where software is used in research, the university recommends considering the use of free software. TH Köln also supports open models that result from the research process, including scientific observations and the data generated from them.

Open Research Infrastructures

Virtual and physical infrastructures

- TH Köln gives its scientists open access to research structures and allows their long-term use, as well as using external infrastructures. TH Köln permits the use of its open infrastructures by external scientists; the infrastructures are designed for reciprocity.
- TH Köln provides access to virtual infrastructures, e.g. knowledge-based resources like catalogues, collections, repositories, archives, and scientific data as well as open computing infrastructures.
- TH Köln provides access to open physical infrastructures as well as university buildings and rooms with corresponding media, research, and workstation facilities.

¹³ [UNESCO Recommendation on Open Educational Resources \(2019\)](#).

¹⁴ TH Köln (2022). Open Educational Resources (OER) policy.

Open integration of social actors

- The open integration of social actors refers to an expanded collaboration between scientists and social actors beyond the scientific community, by opening up practices and instruments from the research process and making them accessible to interested members of society.
- TH Köln aims to ensure open and generally comprehensible communication about scientific processes and results, both within the research system and with additional decision-makers and the wider public – in the area of public scholarship (including politics, memory institutions, citizen scientists, NGOs, and companies) as well as for expert audiences (including expert communities, universities, research institutions, and specialized publishers).¹⁵
- TH Köln supports its scientists through public presentations and suitable channels for digital research communication (e.g. social media).
- TH Köln integrates equality and diversity aspects into the policies, strategies, and practices of Open Science.

Open dialogue with other systems of knowledge production

- The open dialogue and discourse with other systems of knowledge production is based on the transfer among various knowledge carriers, which recognizes the wealth of the different systems and theories of cognition as well as the diversity of knowledge producers in accordance with the UNESCO Universal Declaration on Cultural Diversity.¹⁶
- TH Köln welcomes expanded collaboration between scientists and social actors, which makes the scientific process more inclusive and more transparent, and thus accessible to everyone as part of the scientific communication.
- TH Köln welcomes dialogue among various knowledge carriers, which recognizes the global wealth of various systems of knowledge production and theories of cognition as well as the diversity of knowledge producers and brings together different cultural perspectives.

¹⁵ Weingart, P. & Schulz, P. (Eds.) (2014): Wissen – Nachricht – Sensation. Zur Kommunikation zwischen Wissenschaft Öffentlichkeit und Medien. Velbrück Wissenschaft (p. 315–368).

¹⁶ [UNESCO Universal Declaration on Cultural Diversity \(2001\)](#).

Contact

Scientific Publications

University library publication service (publikationsservice@th-koeln.de)

Open Research Data

Department of Research and Knowledge Transfer

Research Data Management (forschungsdaten@th-koeln.de)

Open Educational Resources

Center for Academic Development (digitalelehre@th-koeln.de)

Open Hardware, Open Source Software & Open Source Code

Campus IT (support@campus-it.th-koeln.de)

Open Research Infrastructures

Department of Research and Knowledge Transfer

Research information system

Open Science Communications

Department of Communications and Marketing (kommunikation@th-koeln.de)

Legal Notice

TH Köln – University of Applied Sciences

Gustav-Heinemann-Ufer 54

50968 Cologne

Open Science Policy at TH Köln – University of Applied Sciences

https://www.th-koeln.de/mam/downloads/deutsch/hochschule/open_science_policy.pdf

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TH Köln
Gustav-Heinemann-Ufer 54
50968 Köln
www.th-koeln.de

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